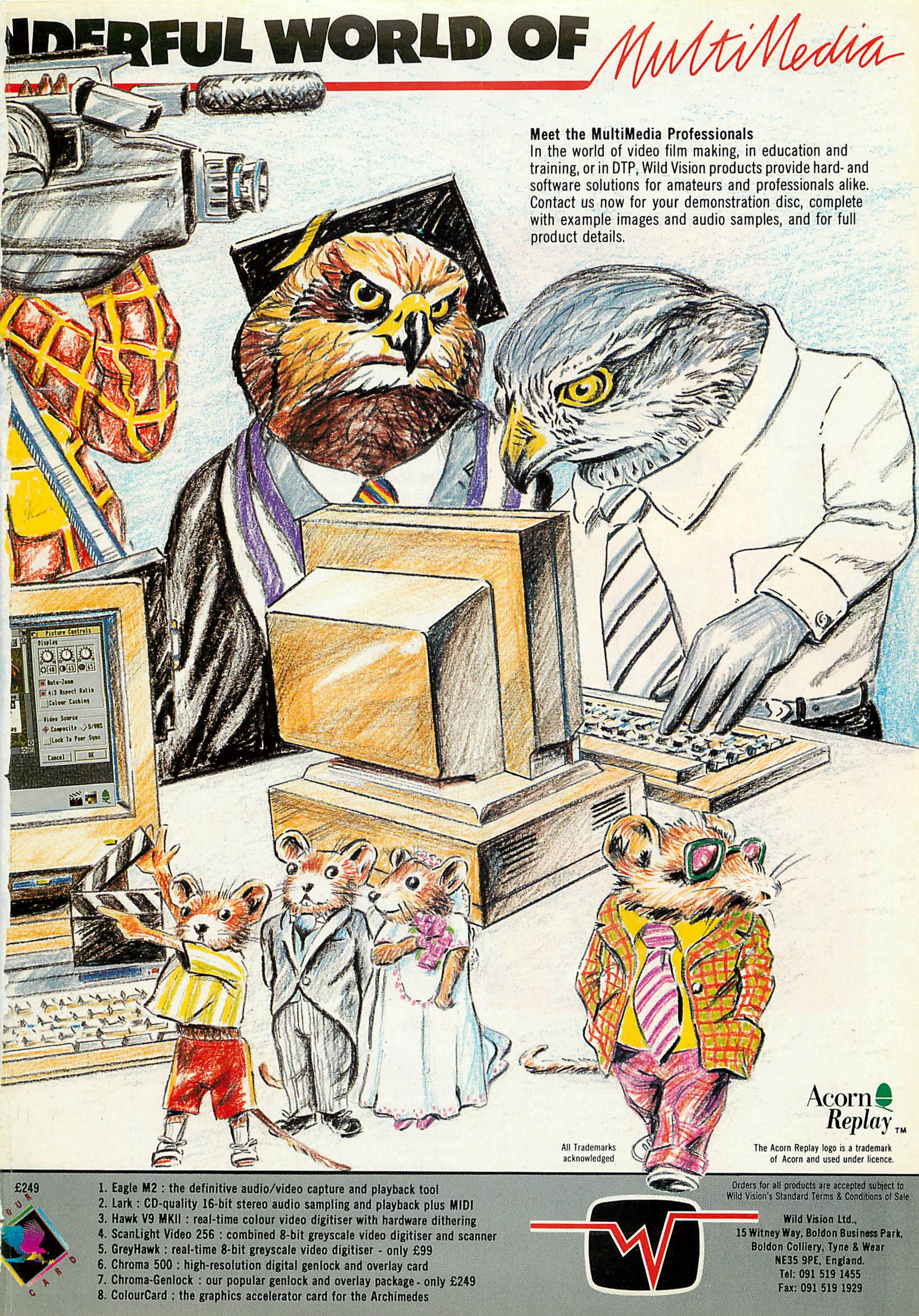


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Published by Redwood Publishing, a BBC Enterprises Company, 101 Bayham Street, London NW1 0AG. Tel: 071-331 8000. Fax: 071-331 8001. Typesetting and colour by Trumps Studio, Ware, Herts. Printed by Cradley Print Ltd, West Midlands. Distributed by BBC Frontline, Park House, 117 Park Road, Peterborough.

ABC Member of the Audit Bureau of Circulation

Redwood Publishing is a registered data user. ISSN 0263 7456.

Editor Karen Donaghay
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Reader services department:
071-331 8022
Cover George Snow
Thanks to Robert Bergs
Subscription enquiries and back copies: (0483) 727762
Annual subscription rate:
£35.40 including free gifts. Please refer to page 126 for details.

FEATURES

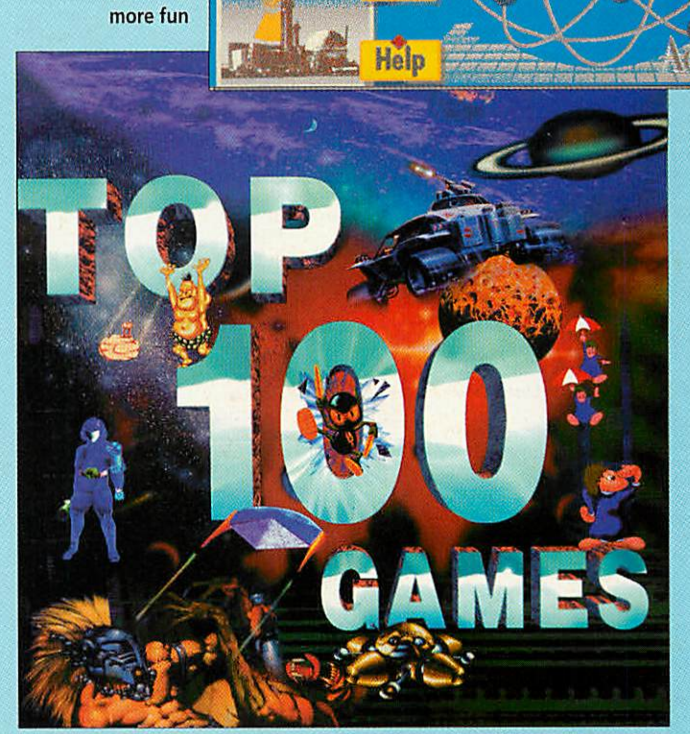
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Editor's letter

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Karen Droughay

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PDT	Oak	£149
Pendown	Longman	£46
Pendown Etoiles	Longman	£46
Pendown Outline Fonts	Longman	£19
Pendown Plus	Longman	£68
Personal Accounts	Apricote	£29
Perspectives	TechSoft	£54
Pesky Muskrats	Coin-Age	£19
Phonic Games	Fisher-Marriott	£28
Photopia	CIS	£POA
Picture Book	Triple R	£15
Picture It!	Appian	£29
– Topic discs	each	£9
PinPoint	Longman	£65
– site licence		£386
PipeDream 3	Colton	£72
PipeDream 4	Colton	£119
PipeDriver Dot 1	ICS	£10
Pipe Mania	Empire	£18
Pirate, age 8-14	Chalksoft	£19
Placard	ICS	£10
– site licence		£30
Plague Planet	Alpine	£13
PlayBack	RISC	£18
Play It Again Sam 1	Superior	£20
Plot	Clares	£POA
Podd, KS1,2	ESM	£25
Podd – Welsh, KS1,2	ESM	£38
Polyominoes	Topologika	£26
Populous	Krisalis	£22
Poster	4mation	£75
PowerROUTER	Silicon	£159
Prehistoric Animals, sprites	Micro Studio	£16
Premier	Circle	£71
– DataBase	Circle	£25
– WordProc	Circle	£25
Presenter GTi	Lingenuity	£66
PrimeArt, KS1-4	Minerva	£68
PrimeMover, KS2-4	Minerva	£75
PrimeSolver, KS1-4	Minerva	£POA
PrimeWord, KS2-4	Minerva	£51
Printer Drivers, RISC OS: Canon BubbleJet, Canon LBP, Canon PJ1080, ColourCel, Epson JX, Epson ESC-P2, HP, Integrex 132 – each	Ace	£19
Deskjet 500C, Epson / Star colour – each	RISC	£15
ProDrivers: Canon LBP8, Epson ESC-P2, HP Colourjet – each	Ace	£37
TurboDrivers: Canon, Epson Stylus 800, HP – each	CC	£42
ProArtisan 2	Clares	£109
ProCAD, KS4	Minerva	£394
Programming in ANSI Standard C on the Archimedes	Sigma	VO £15
Prophet (requires 2 Mb)	Apricote	£145
Prophet Entry Level	Apricote	£10
ProSHEET	Silicon	£36
Protext	Arnor	£117
Provocator	Computer Tutorial	£15
Puncman 1 and 2	Chalksoft	£16
Puncman 3 and 4	Chalksoft	£16
Puncman 5 to 7	Chalksoft	£18
Punctuate	Xavier	£31
Punctuate!	Topologika	£25
QDBug	Leading Edge	£58
QPaint	CIS	£POA
Quest for Gold	Krisalis	£19
QuicKey	ICS	£10
– site licence		£30
Really Useful CD Rom Vol.2	APA	£48
Real McCoy 2	Fourth Dim	£23
Real McCoy 3	Fourth Dim	£23
Real McCoy 4	Fourth Dim	£27
Recall, age 8-13	Sherston	£37
Redshift	Minerva	£10
RemoteFS	Atomwide	£45
Render Bender 2	Clares	£77
Rephorm	Oak	£48
Repton 3	Superior	£19
Resultz	Colton	£106
– secondary site licence		£470
Revelation 1	Longman	£39
Revelation 2	Longman	£75
Revelation 2 CD Rom	Longman	£98
Revelation ImagePro	Longman	£127
Reversals	Chalksoft	£17
Rhapsody 2	Clares	£44
Rhapsody 3	Clares	£79
Rhythm-Bed	Clares	£38
RhythmBox II, age 8+	EMR	£34
RiscBASIC Compiler	Silicon	£77
RiscForth Compiler	Silicon	£72
RISC OS 3 First Steps	Dabs	VO £POA
RISC OS 3 Programmer's Reference Manual	Acorn	VO £99
RISC OS Companion Vol 1	Oak	VO £49
RISC OS Style Guide	Acorn	VO £13
RoboLogo	Silicon	£38
Round the World Yacht Race, age 9+	Storm	£25
Saloon Cars Deluxe	Fourth Dim	£25
– **Deluxe Extra Courses**		**£14**
S-Base Developer	Longman	**£140**
S-Base Developer Plus	Longman	£255
S-Base Network	Longman	£275
S-Base Personal	Longman	**£70**
Schedule	Acorn	£20
Schema	Clares	£95
Schema 2	Clares	£POA
Science, drawfiles	Micro Studio	£25
Score Draw	Clares	£44
Scorewriter PMS Desktop, age 12+	EMR	£147
ScreenPlay	Widgit	£35
ScreenTurtle version 2	Topologika	£45
Search and Rescue, age 9+	Storm	£27
Seashore Guide, drawfiles	Micro Studio	£16
Seelinks – Ourselves, KS1,2	ESM	£27
Seelinks – Pond Watch, KS2	ESM	£35
Seelinks – Tourism, KS3	ESM	£55
Seelinks – Transport, KS2	ESM	£35
Serenade	Clares	£106
Serpents	CIS	£POA
Settlement, KS3	ESM	£31
ShapeFX	Data Store	£10
ShareHolder	Silicon	£96
ShareHolder Professional	Silicon	£164
ShowPage	CC	£143
Shylock Gnomes, age 10-15	Selective	£16
Sim City	Krisalis	£22
Simon the Sorcerer	GamesWare	£POA
SkyHunter	Longman	£22
Sleuth	RISC	£42
smArt	4mation	£50
smArt Aliens, Animals, Dinosaurs, Egypt, Europe†, Faces*, Fantasy, Fashion, Fiddles & Drums, Heraldry, Homes*, Leisure*, Look Smart, Smartoons, Trees and Gardens *English/French/German/Spanish/Welsh; †English/French/German; please specify each	4mation	£15
smArtFiler	4mation	£32
smArt Modern Languages	4mation	£19
Smudge the Spaniel, age 4-8	Storm	£20
Snippet (new version)	4mation	£32
Soapbox	Xavier	£34
SolidCAD	Silicon	£77
SolidsRender	Silicon	£77
SolidTools	Silicon	£204
– education price		£194
SongBook, age 3-10	EMR	£24
Sound Engineer, age 12+	EMR	£59
Sound-FX Maker	CIS	£POA
Sound-FX Maker & Photopia	CIS	£POA
Sounds & Rhymes	Xavier	£29
Spark	David Pilling	£5
SparkFS	David Pilling	£20
Sparkle	Morley	£59
Special	ICS	£10
– site licence		£30
Speech!	Superior	£18
Spelling week-by-week	Chalksoft	£20
Spex	ExpLAN	£98
Spheres of Chaos	Matt Black	£19
Splash, age 7-11	Sherston	£19
Splice	Ace	£34
Split an Image, age 7-16	Sherston	£16
Spoken Word	Wyddfa	£16
Spooler	Computer Tutorial	£9
Sporting Triangles	CDS	£19
SportsDay	Selective	£20
SportsPeople	Selective	£20
SpriteEd	Computer Tutorial	£17
SpySnatcher	Topologika	£12
Square Route	Computer Eyes	£16
Squirrel 2	Digital Services	£130
– site licence		£545
Squirrel C Developer's Toolkit	Digital Services	£96
Starspell Plus	Fisher-Marriott	£19
StartWrite	Icon	£55
StockPack	Topologika	£37
StoryBook, age 3-10	EMR	£59
StrongED	Stallion	£22
Studio24Plus Version 2, age 11+	EMR	£149
Studio24Plus Version 3, age 12+	EMR	£210
Stunt Racer	Fourth	£25
SUMthing	Resource	£19
SuperDump	Silicon	£20
Superior Golf	Superior	£14
SuperPlot	Silicon	£20
Swiv	Krisalis	£19
TABS	ExpLAN	£85
Talisman	Minerva	£8
Talking Pendown	Longman	£54
Talking Pictures	Wyddfa	£16
Target Maths	Triple R	£15
Technodream (Nevryon 2)	Superior	£19
TechWriter	Icon	£159
Thinklink	Xavier	£29
ThinkSheet	Fisher-Marriott	£38
Thundermonk	Minerva	£11
Tiles	Brain Games	£16
Timeshare	Fisher-Marriott	£19
Timetabler	Minerva	£549
Time Traveller, KS2	ESM	£37
– Britain Since the 1930s, KS2		£30
– Expansion, Trade and Industry, KS3		£36
– Making of the United Kingdom, KS3		£36
– Medieval Realms, KS3		£36
– The Victorians, KS2		£30
TinyDraw/TinyPuzzle	Topologika	£34
TinyPuzzle	Topologika	£24
Titler	Clares	£115
Toolkit Plus	Clares	£36
Tools Graphics, drawfiles	Micro Studio	£23
Topographer	Clares	£61
Touch Type	Iota	£38
Tower of Babel	Cygnus	£17
Trace	David Pilling	£5
Tracer	Midnight	£46
Tracker	Leading Edge	£37
Transport, drawfiles	Micro Studio	£25
Turbo Type	CIS	£POA
Turbo Type, Sound-FX Maker, E-Numix	CIS	£POA
Tween	Ace	£35
Twin World	UBI Soft	£14
TWO (Task and Window Organiser)	ICS	£10
– site licence		£30
TypeStudio	RISC	£38
Utility Disc 1	Data Store	£8
Utility Disc 2	Data Store	£13
Utility Disc 3	Data Store	£7
Utility Collection	Data Store	£21
Vector	4mation	£75
Victorians, age 7-11	Sherston	£POA
View»Mac 3	Human	£65
– Arc/Mac Cable	Human	£24
Viewpoints, age 7-11	Sherston	£37

POSTAGE IS FREE
FOR CASH CUSTOMERS IN THE UK

Virtual Golf	Fourth Dim	£25
Visual Backup	Dabhand	£39
Vox Box	Clares	£44
Waiter	Digital Services	£35
Waterloo (not OS 3.1)	Turcan	£19
Whale Facts	Topologika	£31
Wordbank	Topologika	£25
Words and Pictures	Chalksoft	£18
WordWorks	CC	£38
Wordz	Colton	£85
World Geography Maps, draw	Micro Studio	£23
WorldMaker, KS3,4	ESM	£51
World Map Study, KS3,4	ESM	£61
Worldscape	Leading Edge	£17
World Wildlife, sprites	Micro Studio	£16
Worra Battle	Oak	£15
WorraCAD	Oak	£79

ICS

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Xenon 2	GamesWare	£21
Yacht 2	Computer Tutorial	£49
Yacht 7	Computer Tutorial	£94
Zarch	Superior	£14
Zelanites (not OS 3)	Micro Power	£15
Zool	Gremlin	£19

HARDWARE

SCANNERS, DIGITISERS . . .

ArcScanner including Epson GT-4000	Clares	£1660
Colour Converter	Lindis	£145
FaxScan	Spacetech	£94
GreyHawk	Wild Vision	£98
Handipad	TechSoft	£193
Hawk V9 MkII	Wild Vision	
– standard		£199
– hardware dithered		£259
HiVision Digitiser Colour	HCCS	
– A3000 External		£137
– A3000 Series / A4000 Internal		£124
– A5000 / 300 / 400		£124
iMage (Sharp JX-100)	Irlam	
– for A5000		£490
– for other computers		£589
Image Scanner	Iota	£383
– Colour Upgrade Kit	Iota	£239
– Fast Parallel Card	Iota	£98
i-Scan 200	Irlam	£539
i-Scan 400	Irlam	£589
Pineapple Colour Video Digitiser	Pineapple	£195
– A3000 boxed	Pineapple	£230
ProImage (Epson GT6000)	Irlam	
– for A5000		£989
– for other computers		£1089
Scan-Light A4	CC	£277
Scan-Light 256	CC	£185
– A3000 External	CC	£190
– A3000 internal	CC	£190
Scan-Light Professional	CC	£565
– as above + SCSI interface	CC	£699
Scan-Light Video	CC	£208
Spectra	RISC	
– A3000 Series / A4000 Internal		£545
– A3000 External		£555
– Archimedes / A5000		£545
Vision Digitiser	HCCS	
– A5000 / 300 / 400 Mono		£48
– A5000 / 300 / 400 Colour		£76
– A3000 External Mono		£60
– A3000 External Colour		£89
– A3000 Series /A4000 Internal Mono		£48
– A3000 Series / A4000 Internal Colour		£76

MEMORY . . .

Fitting extra unless otherwise stated
† Fitting fairly easy ‡ Fitting needs expertise

A3000 2 Mb Upgradable †	Atomwide/IFEL	£58
A3000 4 Mb †	Atomwide/IFEL	£120
A3010 1-2 Mb		£39
A3020 / A4000 2-4 Mb †	IFEL	£POA
A310 2 Mb Upgradable soldered ‡	IFEL	£94
– as above + MEMC1a		£119
– as above + MEMC1a + fitting		£149
A310 4 Mb soldered + MEMC1a ‡	IFEL	£159
– as above + fitting		£189
A5000 2-4 Mb †	Atomwide	£85
A5000 2-8 Mb including fitting	Atomwide	£500
A5000 2-8 Mb including fitting	Atomwide	£391
A540 4 Mb †	Acorn	£238

COMPUTERS . . .

A3010 Action Pack	Acorn	£335
A3010 Learning Curve System	Acorn	£599
A3020 FD System	Acorn	£650
A3020 HD60 System	Acorn	£775
A4 2M FD System	Acorn	£1350
A4 4M HD60 System	Acorn	£1650
A4 Battery Pack	Acorn	£53
A4 Shoulder Bag	Acorn	£37
A5000 2M HD80 Multiscan System	Acorn	£1225
Pocket Book	Acorn	£169
– Class Pack		£1599

For ordering details please turn to page 3



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PRINTERS . . .

ArcLaser 300-6	*Calligraph*	£895
ArcServer 300-8	*Calligraph*	£985
Bubble Jet BJ-10sx	*Canon*	£187
Bubble Jet BJ-10sx + TurboDriver	*Canon/CC*	£219
Bubble Jet BJ-230	*Canon*	£315
Bubble Jet BJ-300	*Canon*	£325
Bubble Jet BJ-330	*Canon*	£380
Bubble Jet BJC-600 + TurboDriver	*Canon/CC*	£535
Bubble Jet BJC-800 + TurboDriver	*Canon/CC*	£1374
DeskJet 510	*Hewlett-Packard*	£275
DeskJet 500C	*Hewlett-Packard*	£375
DeskJet 550C	*Hewlett-Packard*	**£455**
Laser Direct HiRes4 + Impression	*CC*	**£799**
– 250-sheet Paper Cassette		£99
Laser Direct HiRes8 + Impression	*CC*	**£1050**
Laser Direct HiRes Board	*CC*	£325
New toner cartridge for Canon LBP-4		£59
New toner cartridge for Canon LBP-8		£75

MISCELLANEOUS. . .

386 PC Expansion Card 25 MHz	*Aleph One*	
– 1 Mb		£POA
– 4 Mb		£POA
486 PC Expansion Card	*Aleph One*	
– 1 Mb		£POA
– 4 Mb		£POA
4-slot 4-layer Backplane	*IFEL*	£52
5315 Monitor	*Aydin*	£425
A300/400 Fan kit	*ICS*	£15
A3000 Expansion Box	*Wild Vision*	£135
A310 RISC OS Carrier Board ‡	*IFEL*	£18
A5000 Fitting Kit for second hard disc	*ICS*	£15
A5000 105 Mb Removable Disc Kit		£POA
– Extra 105 Mb Disc		£POA
AnDi Oddule	*Baildon*	£39
Arckey Function KeyStrip Holder	*ICS*	V0 £3
– pack of 4		V0 £10
ArcNET	*ACS*	£69
ARM3 ‡	*Aleph One/IFEL*	£165
Arm_Stick	*Arm_Tech*	£28
ColourBurst	*State*	£374
ColourCard	*CC*	£225
– A3000 External	*CC*	£225
Dongle Dangle with screw fittings	*ICS*	£6
Fan filters (pack of 10) (not A5000)	*ICS*	£6
FaxPack	*CC*	£289
Floating Point Accelerator (A5000 + A540)	*Acorn*	£93
Floppy Discs, 10 × 3½" High Density		£10
G16 True Colour Card	*State*	£258
G8 Plus Accelerator	*State*	£238
HiPoint Mouse for A4	*Genius*	£49
I²C Adaptor	*Baildon*	£10
I²C SWI (enhanced IIC_Control)	*Baildon*	£15
– bought with AnDi Oddule		£5
Microlin fx Pocket Fax Modem	*Pace*	£179
Micro Mouse	*Clares*	£26
Monitor Stand for A3000	*ICS*	£21
Mono/SCSI	*Atomwide*	£48
Podule Case for A3000	*HCCS*	£16
Power Pad (Dual)	*GamesWare*	£34
Power Pad (Single)	*GamesWare*	£25
Printer Port Sampler	*Leading Edge*	£42
Printer/SCSI	*Atomwide*	£74
Publishing Pack	*CC*	£475
Revolution CD-ROM	*Morley*	£295
Revolution Pro (for SCSI system)	*Morley*	£435
RISC OS 3 Upgrade	*Acorn*	£45
Seal 'n Type spill-proof Keyboard Covers		
– Archimedes / A5000	*Kador*	£14
– A3000	*Kador*	£14
TouchWindow	*Lindis*	£234
Whisper Fan Quietener (for A300/A400 series only)	*ICS*	£15
Wizzo IDE Filing System on rom	*ICS*	
– Wizzo4 for A4		£POA
– Wizzo5 for A5000		£39



use an A5000?
need to back-up data quickly?
need to carry data from one computer to another?
wish you could lock important data away easily?

Could you



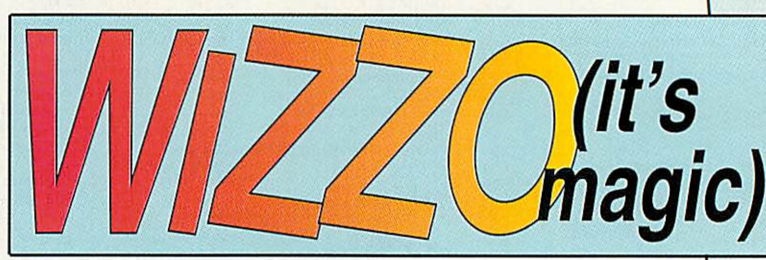
105 Mb floppy discs?

We've got some. They should really be called removable hard discs, but the difference is academic. Just install one of our SyQuest kits in your A5000 as though it were a second floppy disc drive. Now you can use 105 Mb removable discs as if they were fast floppies.

Removable discs cost about the same per megabyte as traditional floppies. Our complete package includes a drive, a fitting kit and one 105 Mb disc, formatted and tested. No soldering is required.

Each ICS kit also contains a special version of Wizzo –- our own IDE filing system on rom. Acorn's filing system does not support removable hard discs (you would need to reset the machine every time you removed a disc).

Only Wizzo supports the SyQuest option.



And gives you disc partitions, password protection, and the ability to access more than 512 Mb of storage.

WIZZO SYQUEST COMPLETE PACKAGE £449
ADDITIONAL 105 MB DISCS £69 EACH

Wizzo5 owners: please return your rom in its original packaging and deduct £15.

HOW TO ORDER

VAT: Zero-rated items are marked V0. UK customers please add 17.5% to all other prices. EC customers outside the UK (including BFPO) please do the same unless you are VAT registered, in which case quote your international VAT number. Ours is GB 595 7258 84.

CARRIAGE IS FREE WITHIN MAINLAND UK IF YOU PAY ON ORDERING.

Overseas carriage: If you are paying by credit card we will add airmail and insurance at cost. Otherwise please add £6 (Europe) or at least £12 (elsewhere) for each software item and send a pounds sterling bank draft payable at a London clearing bank, or Eurocheques for not more than £100 each.

Credit cards are welcome. We do not charge your account until your order is fulfilled. Your name and address must be as known to the credit card company. If you are leaving an order on our answering machine please include your telephone number, the expiry date of your card, and your calculation of the total payment due. We will make no charge for credit card commission unless we have informed you first.

Official orders are welcome from UK government and educational institutions. Payment is due in 14 days. Invoices are subject to carriage and late payment charges.

Site licences are available for most products. Please check our prices.

All products, prices and specifications are offered in good faith and are subject to change without notice. We process all orders immediately, but suppliers do sometimes keep us waiting. Goods are guaranteed but we do not supply them on approval. Returns and cancellations can only be accepted by prior agreement and there may be a charge to cover the costs involved.

AUTHORISED ACORN DEALER

ICS (Ian Copestake Limited)

Dept B49, 1 Kington road, WIRRAL, Merseyside, L48 5ET

Tel: 051-625 1006 Fax: 051-625 1007

E&OE D61 931016

LICENSED CREDIT BROKER



ACORN MACHINES TO HAVE INTEL INSIDE?

NEXT year Acorn might produce computers which are both Arm Risc- and Intel PC processor-compatible.

Peter Bondar, Acorn's product marketing manager, was quoted in *Electronics Weekly*, saying Arm Ltd and Acorn are working on a new chip, the IOC20, which will enable future Archimedes to run an Arm Risc processor, an Intel one, or both at once. The IOC20 will manage memory accesses for either processor.

Bondar said future machines would have an empty Intel socket for customers to add PC Dos and Windows compatibility. Bondar's statements were verified by third-party Acorn developers who say they have been briefed.



Intel inside: a cuckoo in the nest?

The news was met with disbelief by Acorn watchers. There was pessimism that Acorn might concede its hard-fought independence to the PC; this would be the thin end of the wedge, some said.

When we asked Acorn technical director, Malcolm Bird, to clarify the matter he said: 'We are looking at architectures for the future that support more than one processor, not for parallel processing but to support processors carrying out independent tasks. These could access memory and peripherals attached to the Archimedes.

'We are not precluding the second processor being from the Intel. This is what we have made public at this time.'

Bird said none of this was earth shattering, and suggested that *Electronics Weekly* had misinterpreted the situation.

Opinion is divided over whether Dos and Windows compatibility at hardware level is good or not. It would remove the perceived disadvantage of software incompatibility, notably in the secondary education market. Although the existing Acorn PC Soft emulator is good it falls short of the all-important Windows 3.1 compatibility.

On the other hand, Acorn's hybrid solution could be expensive to implement and most agree that if Acorn wants to expand its markets it has to drive its bottom line prices down. *Contact Acorn on (0223) 254254.*

Acorn card price cut offers cheaper PC compatibility

PRICE reductions have just been announced by Acorn on its whole range of PC Card products.

Acorn PC386 and PC486 cards for either the A3020 or the A4000 have been dropped in price by at least £50 each and the A4000/PC system, which also includes a fitted PC card, is down in price by over £100.

The PC Card operating software, which integrates the PC environment into Risc OS has also been improved. Anybody wanting to upgrade from their existing equipment will not miss out on the deal; Acorn has decided that upgrades are going to be available to existing users free of charge. Existing Acorn PC Card users can obtain the upgrade by returning their original Acorn PC Card software disc and Windows driver (if supplied) which they should mark 'PC Card Upgrade' to the following address:

Customer Services,
Acorn Computers Limited,
Acorn House,
Vision Park,
Histon,



An A4000 fitted with a PC card

Price list

	Old	New
AGA31 PC 386 Card	£275	£225
AGA32 PC 486 Card	£499	£425
A4000 HD80/386 PC*	£1199	£1075.21
A4000 HD80/486 PC*	£1399	£1275.21

*Supplied with standard AKF80 monitor, add £42.55 + VAT for AKF18 multiscan.



The ideA range

ICS was the first company to offer IDE products for Acorns back in 1990; now they are the standard choice for new Acorn computers. Building on three years' experience we have continually improved our IDE filing system. It now offers the highest level of RISC OS compliance, and compatibility with at least 45 different hard discs tested by us. Can any other supplier make this claim?

Our IDEFS abolishes the RISC OS limit of 512 Mb, and offers extra features such as password protection, background operation, disc partitioning, and power saving (which allows some discs to stop spinning when idle).

Partitions can have different levels of protection. Family or pupils can access some of your files while you keep others safely out of their reach. Or you can simply protect the whole disc (reformatting is not required for this).

Our hard disc upgrade kits are based around two internal interfaces at present: IDEA3IN for the A3000 Series, and IDEARCIN for the A300/A400/A500 Series. All kits are designed to a high standard and include all the parts you will need.

IDEA3IN upgrade kits include an I²C expansion socket as standard. They come with a 2½" disc already attached, and are easy to fit once you have opened up your computer. You may safely take no notice of rumours still being spread that internal upgrades might not be safe in an A3000. We have adhered carefully to the guidelines in Acorn's technical specifications, and in three years have never come across a problem.

IDEARCIN upgrade kits provide a fast 16-bit link all the way from the computer to the hard disc. They can even be fitted to an A310 without a backplane – quite a cost saving. A second hard disc can easily be added later if required.

Interfaces and hard discs can also be bought separately. By shopping around you may even save a few pounds. But beware: not all IDE hard discs work with all interfaces, and if you have a problem it may be difficult to decide who should put it right. We recommend buying a complete kit from one source.

WIZZO is the name given to our IDE filing system when it is supplied as a single rom chip. Wizzo5 is for the A5000, and Wizzo4 is for the A4. You should buy a Wizzo if you need password protection or wish to use larger hard discs. (Wizzo4 has been delayed slightly – we are adding a feature to ensure compatibility with possible future A4 upgrades).

A Wizzo rom by itself will only produce a slight speed improvement. If you need speed in an A5000, fit an IDEARCIN interface instead. Up to 60% improvement can then be achieved, but this does depend which hard disc you use so do check with us first.

How to read our ideA product references

A number at the end is the nominal hard disc capacity in megabytes. We usually round this down, so the actual formatted capacity may be higher. All discs have auto-parking. Average access times vary but all are below 20 ms.

All prices shown exclude VAT and are subject to change without notice. The cost to us for hard discs can vary enormously from week to week – not always downwards! Your local dealer can obtain *ideA* products from us or from a distributor.

▸ Archimedes A300/A400/A500 Series Internal Upgrades

Package includes formatted hard disc, ideA interface card, hard disc cradle and fittings, fan kit, replacement multi-purpose LED (power and drive status), manual with fitting instructions. Can be fitted to an A310 without a backplane. If a backplane is used it must be a 4-layer type. Easily fitted by most users.

IDEARCIN 40	£175	IDEARCIN 330	£399
IDEARCIN 80	£205	IDEARCIN 420	£499
IDEARCIN 170	£275	IDEARCIN 540	£650
IDEARCIN 240	£325	IDEARCIN 1000	£925

▸ A3000 Series Fully Internal Upgrades

Package includes formatted hard disc mounted on ideA interface card, manual with fitting instructions. Fully internal, using internal expansion slot. Co-exists with floppy drive and memory upgrades. Fits the new 1992 computers. Easily fitted subject to Acorn warranty stipulations.

IDEA3IN 40	£175
IDEA3IN 80	£250
IDEA3IN 120	£299
A3000 FAN KIT (not usually required*)	£19

**Only required if the computer has been fully upgraded, e.g. with maximum memory AND Econet AND an external podule.*

▸ Separates for hard disc upgrades

We can only guarantee the performance of ideA interface cards with hard discs we have tested ourselves, so please check if in doubt. If you are buying a hard disc for an A5000 please say so. If you intend to fit the disc in addition to an existing one we need to know the make and model of the existing disc. Acorn's interface does not support all makes of disc, and some models will work as a second disc but not on their own.

Hard discs on their own are listed as, for example, IDEA 80. An S at the end indicates a 2½" disc.

IDEARCIN (Archimedes Interface for Internal disc(s))	£60
IDEA3IN (A3000 Interface for Internal disc)	£75
ARCHIMEDES INTERNAL CRADLE KIT	£15
ARCHIMEDES A300 / A400 SERIES FAN KIT	£15
4-SLOT 4-LAYER BACKPLANE	£52
POWER CABLE FOR SECOND HARD DISC	£5
A5000 SECOND HARD DISC FITTING KIT	£15

IDEA40	£125	IDEA330	£349
IDEA80	£155	IDEA420	£449
IDEA170	£225	IDEA540	£600
IDEA240	£275	IDEA1000	£875

IDEA40S	£115
IDEA80S	£190
IDEA120S	£239

▸ WIZZO IDE Filing System on rom

Package includes rom, manual and fitting instructions. Compatible with RISC OS 3.0 and 3.1. Allows up to four logical partitions over two physical drives. Each partition appears separately on the icon bar and can have different password protection. Makes use of existing Acorn hardware for maximum compatibility, but works with a wider range of hard discs. Security breaches using ADFS can be prevented. Can be fitted easily by a competent user.

Available now: WIZZO5 for A5000	£39
Available soon: WIZZO4 for A4	POA

Quantity discounts available • Dealer enquiries welcome



ICS (Ian Copestake Limited), Dept B49, 1 Kington road, WIRRAL, Merseyside, England, L48 5ET

ARM LTD LAUNCHES ARM7

ARM7, the Risc processor technology which will be at the heart of Acorn's new flagship computers next year, has been officially launched by Arm Ltd.

Arm7 is also seen as a potential winner – and thus good for Acorn's investment in Arm Ltd – in processor applications which have already proven successful for its predecessor, the Arm6. New features like DSP (digital signal processing) capability will take the Arm7 into totally new markets as well.

The Arm7 family is an evolutionary development of the Arm6 and some versions will be pin-compatible. Arm6 is itself a direct descendant of the Arm2 and Arm3 processors which are currently used by and were originally designed by Acorn.

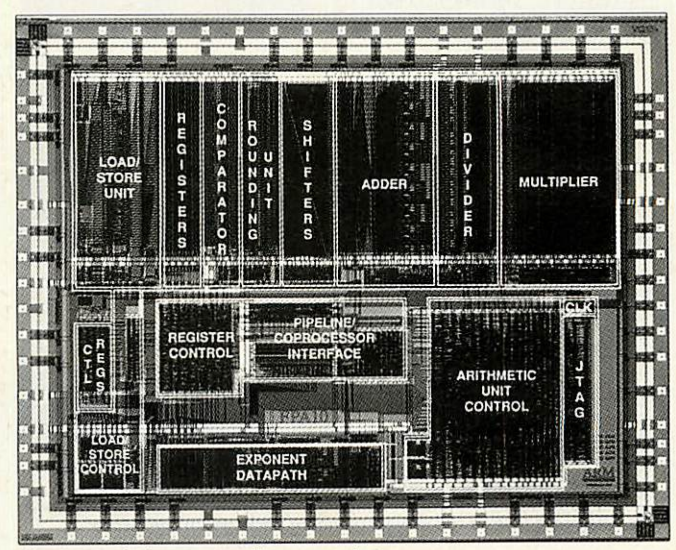
Acorn is thought to be basing its future designs on a new Arm700 chip. This is an updated version of the Arm600 which was developed two years ago.

Compared to the Arm600 (and the much older Arm3 which is also still being used by Acorn) the new Arm700's instruction cache is doubled in size to 8K. The Arm700 is clocked at 33MHz, or 20MHz in its battery-saving low-power mode.

Although no direct comparisons are available at the present time, a rough guess is that a 33MHz Arm700 is just about double the performance of the current fastest 33MHz Arm3 processor which Acorn is using in the new A5000 machine.

Acorn likens the performance of that machine to a 33MHz 486DX PC, so you might say that an Arm700-based Acorn should produce the power to match a 486-DX2/66 PC.

For the technical buffs among you, Arm Ltd quotes a performance of 55369 Dhrystones (version 1.1) and 52 Dhrystone 1.1mips (million instructions per second) for the Arm700 at 33MHz.



The Arm7: aiming at a totally new market

Other Arm7 technology announced includes the Arm7DM architecture which includes a very fast hardware multiplier for DSP applications, and Arm7D which should make life easier for developers wishing to integrate Arm7silicon into their own custom chips.

The Arm700 is also considerably more efficient in terms of mips per watt than even the Arm600 and so the technology will maintain the company's clear lead in the race to provide battery-frugal computing power for portables and the next generation of computers, like Apple's Newton PDA.

Object oriented C

THE fastest growing computer language is C. There is a selection of good Acorn C compilers available but until recently no support for the latest development in C programming: C++ or object oriented C.

C++ is better for windowing environments like Risc OS and C++ code can be easier to produce and more stable than ordinary C. The majority of C-based software developers on other platforms now use C++, so there is a pool of C++ software resources which Acorn developers can't exploit. We asked Acorn head of technical support, David Bell, about the prospects for C++ on the Archimedes:

'Over the last few months, Acorn has made available to Registered Developers a copy of AT&T's CFront product for evaluation. This takes C++ source code and translates it to C code. This can be compiled with Acorn Desktop C.

'Feedback from at least one developer evaluating the product is enthusiastic. We are now investigating making this available to developers for production of commercially available software.

According to Arm Ltd, C++ development tools for the new Arm7 processors will be available soon.

Pocket Book

AFTER slashing the price of the Pocket Book personal organiser, Acorn has conjured up a new deal which includes a Pocket Book, the *Schedule* diary application, A-Link, mains adapter and the Acorn Advance integrated software package for Risc OS, plus a year's hotline support.

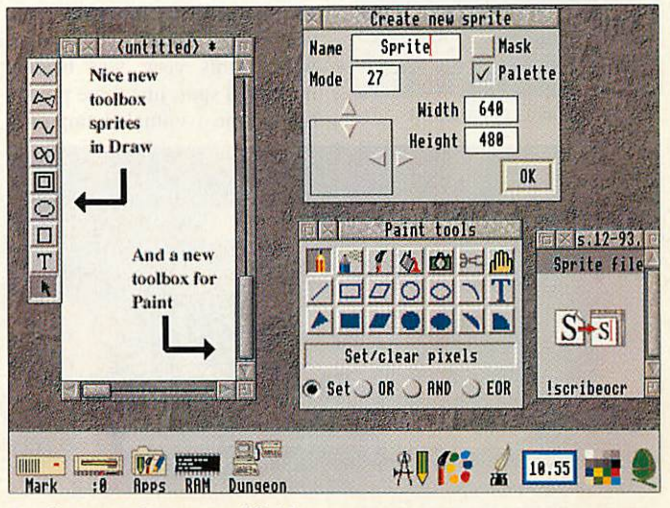
The bundle costs £249.95 including VAT, over £200 less than the cost of all individual items bought separately. The offer is open until the end of the year and orders should be sent to Acorn Direct (Advance Pocket Book offer), Freepost, Wellingborough, Northants, NN8 2BR.

NewLook at Acorn World

IF you don't make it to Acorn World you'll miss out on something for nothing from Acorn and TDK.

TDK provided 15,000 discs to be given away to show visitors and each disc contains Acorn's *NewLook* designer desktop application. *NewLook* gives you 3D icons and scroll bars plus a textured finish.

However, Acorn says it will look into distributing any surplus discs after the show, but please don't write to Acorn about getting *NewLook* at this stage. Those who manage to pick up their copy of *NewLook* are reminded by Acorn that the software is copyrighted.



A rather attractive textured finish

ACORN PLANNING SYSTEM

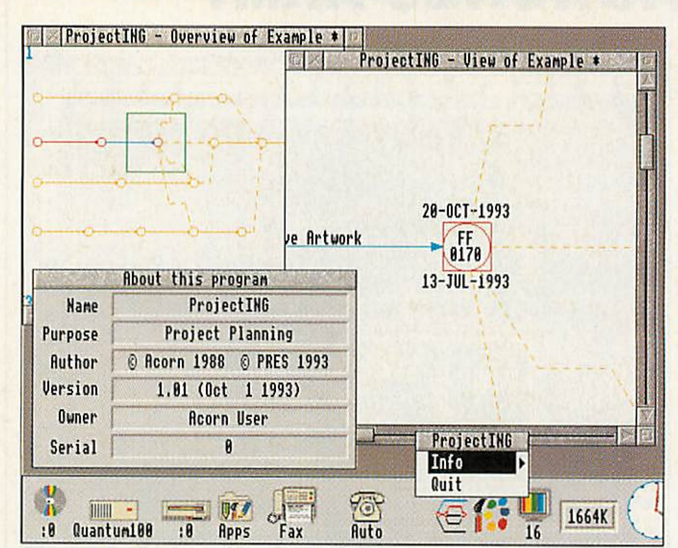
ONE of the few remaining holes in the portfolio of serious applications software for the Archimedes is about to be plugged with the imminent arrival of a full-blown project planning package from PRES: the package is called *PresentING*.

The ING comes from the software's beginnings at Acorn where it was commissioned back in 1988 as a highly-visual project planning tool to replace a textual system running on PCs. ING stands for Interactive Network Graphics.

ING uses draw-like operations to build up a network of windowed objects like nodes and paths which make up the structure of a project plan.

Clicking in nodes and paths will then bring up object data which can be further edited in order to annotate the plan or to change time line parameters, and so on.

Critical paths and milestones can be highlighted and there are extensive reporting options in the package also, including an *Impression* styles module which is used to be used for project publishing.



PresentING comprises a full project planning package for the Acorn

PRES took *ING* under its wing earlier this year after it was realised that Acorn's custom program had real potential as a real-world Archimedes application.

Renamed *PresentING*, the PRES version has been modernised for Risc OS 3.1 and improvements have been made to reporting features. A means of including resource data has also been added to the package.

John Huddlestone at PRES says that *PresentING* is a powerful and serious tool for all kinds of businesses but is relevant to Acorn's traditional customer base in schools.

PresentING will sell for less than £300. For more information contact PRES on (0276) 472046.

Acorn achievers

MUGGERS should beware in the vicinity of Oak Solutions in Cambridge. Marketing and support assistant Christine Hubbart has just won a gold medal in the light contact category of the World Kick Boxing Championships held in Denmark.



Oak's complaints department

Meanwhile, motor racing mad Mark Colton – founder and managing director of Colton Software – narrowly missed being crowned the national Hill Climb champion this year. Mark, a regular winner this year, was beaten into third spot, just three points behind the eventual champion.



...and Mr Colton in the company car

Macmillan quits Colton

A TERSE statement by fax brought the news that Colton Software's managing director, Rob Macmillan, had left the company.

No explanation was given, though Mark Colton announced that the company is to take on new staff as part of an expansion drive.

Acorn says Eureka

ACORN has opted to equip staff at the Vision Park HQ with Longman Logotron's *Eureka 2* spreadsheet. The deal was for a company-wide 300-user license and Longman Logotron says it was secured as Acorn had substantial spreadsheet data which needed converting from *Lotus 1-2-3*.

In brief

StrongED speaks German

StallionSoftware's *StrongED* text editor for programmers has reached release 2.60 and was unveiled at the first German Acorn show at Illertissen recently. It is also available in a German version for the first time. German customers should contact Interstellar Overdrive on (+49) 8071 40739 or Klein Computer (+49) 6142 81131. Stallion UK is on (0225) 339090.

Software for sailors

Reader VL MacKinlay has written to tell us about his new application for calculating and printing race results during sailing handicap races.

The software has been successfully tested at events in Scotland this summer. It is expected soon for £85, which includes updates. Contact VL MacKinlay at 29 Corslet Road, Currie, Midlothian EH14 5LZ.

Revolutionary Removables

Norwich Computer Services has secured a supply of very fast removable SyQuest hard disc drives. Unlike older designs where most or even all of the drive unit had to be removed, the new SyQuest drives use removable 3.5in disc cartridges not much larger than a floppy disc. Each 105Mb cartridge costs just £69 + VAT.

NCS is supplying an internal SCSI system with one cartridge for £439 + VAT or an external version for £509 + VAT. An IDE version is available for slightly less, though because of how ADFS works, changing cartridges without resetting is a problem, though one Acorn is looking into. A portable battery version is available.

The drives aren't just small and convenient, they're fast – faster than the 160Mb drives used by Acorn in the A5000 according to NCS' Paul Beverley. NCS is on (0603) 766592.

Revolution.
The new CD-ROM.
At only £299
+ VAT
its pedigree may surprise you!

The Morley **Revolution** is the ultimate plug-in-and-go CD-ROM drive solution for Acorn 32bit computers.
This Revolutionary new system is the result of a unique Morley Electronics development, based around the latest CD-ROM drive from Sony. Developed specifically for the Acorn market, it is suitable for all Acorn 32bit desktop computers from the A3000 right up to the A540. There are no complicated setups or *commands. Merely plug in the interface and drive, switch on and you are ready to go. Simple and quick, the Morley **Revolution** offers an exciting solution for requirements in education, the home, industry and office environments. Current applications include encyclopaedias, dictionaries, newspapers, digitised video and sound, clip art and a host of other programs offering exciting learning possibilities that would not be feasible without CD-ROM.
The **Revolution** matches the capabilities of far more expensive drives. It is Replay, multisession and Kodak Photo CD compatible, operates via Acorn's CDFS and is compatible with existing hardware running RISC OS 3. It can also use all available RISC OS based CD-ROMs, as well as access DOS based discs and run them through emulation. It even plays audio CDs!
Contact us for more details about the Morley **Revolution** CD-ROM or place your order and join the **Revolution** now.

Sony is the registered trademark of the Sony Corporation of Japan.

JOIN THE REVOLUTION NOW
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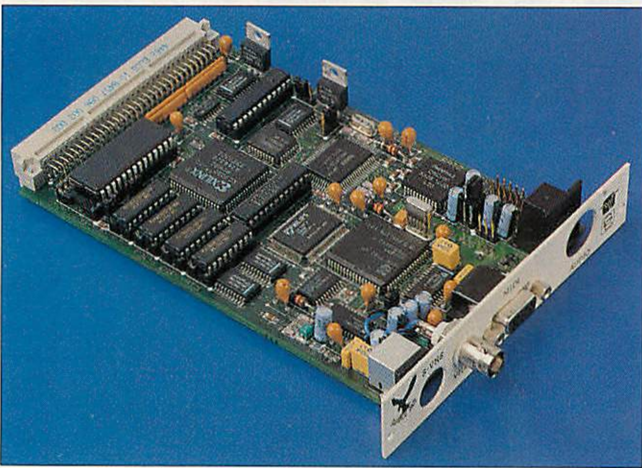
EIDOS MAKES MOVIES

EIDOS has done a deal with Computer Concepts and Wild Vision to bundle its alternative digital movie compression system with the new Wild Vision Eagle M2 multimedia card for an introductory price of £299. At the same time the Hawk V9 MkII real-time colour digitiser drops to £199.

The Eagle card does everything the V9 can plus multimedia applications. It is a real-time digitiser which can be used for static or moving image work, with stereo audio sampling. It can grab 24- and 15-bit colour images compatible with the Computer Concepts Colour Card and eight-bit images are dithered in Hawk V9 fashion. The card can be used for greyscale digitising. On the movie side, the Eagle can be used as an Acorn Moving Lines and/or Eidos stereo sound and video *Replay* movie capture board.

The Eidos system, which we reviewed in August, is an alternative to the Acorn Moving Lines system which has been used until now for producing Acorn Replay movies.

Computer Concepts' Charles Moir explained the attractions of Eidos: 'Until now the only way to create a movie was to have a very large and very fast hard disc, record the movie in real time to disc, then compress the data off-line to make a *Replay* movie, a time-consuming process. Now using the Eidos software and Eagle card we can compress video in real time, making the whole process significantly more practical and cost-effective.'



Moving pictures with an alternative compression system

Unlike the Hawk V9, which was restricted to Pal composite video, the Eagle's use of a new Philips chip-set adds NTSC and S-VHS hi-band video source compatibility.

Software packages bundled with the Eagle card include *ARMovie* for playing back *Replay* movies, the Eidos real-time compression system (though not the amazing *EidoScope* movie editor) and the new *AudioWorks* sound editor (reviewed in this issue) from Computer Concepts.

Wild Vision's Peter Wild commented: 'By pricing our new products at a level which is accessible to a wide audience, we are going a long way towards dispelling all the hype. I think it is clear that multimedia is going to really take off on the Acorn platform over the coming months. Wild Vision's objective is to be the leader of that revolution.'

Wild Vision has also announced its new Lark 16-bit stereo sampling card will cost £199 and include Midi connectivity. The card can also be used as a synthesizer and filter and it can be hooked up to external digital sound processors.

Finally, Wild Vision has detailed its new Chroma 500 digital genlock card, which will be priced £449 and include S-VHS compatibility. The original composite video-only Chroma Genlock has been revamped and repositioned at £249. Wild Vision is on 091-519 1455.

ScanLight Video plus Revelation

LONGMAN Logotron and Wild Vision have combined forces on a new package.

The agreement is to combine the former's *Revelation Image Pro* image processing and painting software with the Wild Vision's ScanLight Video 256 combined hand scanner and monochrome video digitiser card.

The deal price is £299 + VAT, which comes out over £60 cheaper than buying the two separately.

For further information on the package contact Longman Logotron on (0223) 425558 or Wild Vision on 091-519 1455.



A joint venture from Wild Vision and Longman Logotron

In brief

Replay Plus

Irlam Instruments is due to demonstrate Replay Plus at Acorn World. Replay Plus is a hardware upgrade designed to improve the image quality of movies captured using the *Acorn Replay* DIY kit, which Irlam designed the card for.

Complementing Replay Plus is new software in the form of several new movie formats, time lapse recording, improved editing and better sound. The new formats consume less disc space and can be played back immediately for story-boarding. Replay Plus costs £139 + VAT.

● Also from Irlam Instruments comes a new professional sound sampling card which records direct to disc. 16-bit stereo samples can be sampled at Dat or CD audio rates. The card replays samples directly, avoiding the comparatively low quality built-in Archimedes sound channels. The board has a digital signal processor (DSP) and can be used for real-time audio effects and audio compression. It costs £299 + VAT. Irlam is on (0895) 811401.

LaserDirect

Computer Concepts has cut the price of its LaserDirect printers and improved the printer driver software. The HiRes4 is down £200 to £799 while the faster, larger HiRes8 drops £396 to £1099. Both are supplied with new LaserDirect drivers based on CC's TurboDriver and are fully compatible with Risc OS 3.

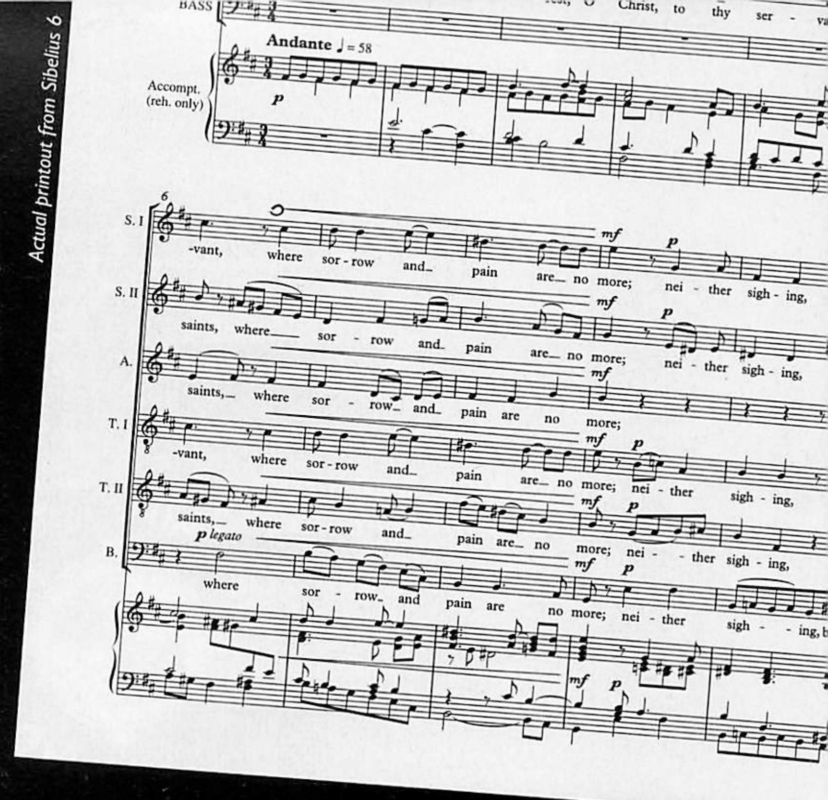
Every printer CC sells between now and Christmas will be supplied with a free copy of *Impression II*, upgradeable to *Impression Publisher* when that ships, for £29 + VAT.

An addition to the CC line up is a new Pioneer CD-Rom player. The Pioneer DRM-604X costs £999 + VAT and is aimed at network installations. Computer Concepts is on (0442) 63933.

Sibelius 6

...is the new score-writing program for Acorn computers.

- Based on the *Sibelius 7* expert system, acclaimed as the world's best music engraving program
- Simple, intuitive mouse operation
- Astonishingly fast WYSIWYG graphics – full screen redraw takes typically *0.1 seconds*
- Real-time reformatting, for instantaneous response to adjustments to the score
- *All* types of music supported (vocal, orchestral, keyboard, chamber, even graphical scores)
- *All* standard musical notation incorporated
- *Sibelius 6* has been taught hundreds of music engraving rules, which it constantly applies 'on the fly' to ensure your music is correctly notated and clearly laid out
- Instantaneous part extraction and transposition
- MIDI input (as an alternative to mouse input), 16-channel MIDI output and speaker playback
- Draw file creation, so you can produce graphical scores, incorporate music into documents (e.g. in Impression), or use it in posters and other design work (e.g. with ArtWorks)
- Entirely written in assembly language, with many specially re-written OS routines
- Even runs on 1Mb computers



Actual printout from Sibelius 6

Manuscript paper ...that thinks.



Sibelius 7 *expert system*

...is simply the best score-writing program in the world.

But don't just take our word for it. Here's what some of the many leading composers, publishers and other professionals who now use the *Sibelius 7* expert system have to say about it:

"I never thought I would abandon pen and ink, but *Sibelius 7*'s quality, speed and ease of use have completely won me over"
John Rutter (composer)

"Clearly this is by far the best music processing program in the world – it has to be seen to be believed"
Chris Hinkins (Award-winning music engraver)

"...engraving of quite exceptional quality"
Piers Hembry (Production Director, Faber Music)

"I have been astounded by the versatility and elegance of this system"
George Benjamin (composer)

"Impossible, but true"
Future Music magazine (August 1993)

In addition to the numerous features of *Sibelius 6*, the *Sibelius 7* expert system gives you:

- Unlimited score length
- Up to 128 staves per page
- Arbitrary stave and page sizes
- Fully user-definable text styles
- Automatic player numbering (required for most orchestral scores)
- Many extra symbols
- Numerous 'house style' options to customize your scores
- Many extra music engraving features
- ...even a 24-hour technical support hotline direct to *Sibelius 7*'s programmers!

Please send me a complete information pack about:

☐ *Sibelius 6* ☐ *Sibelius 7* ☐ Both

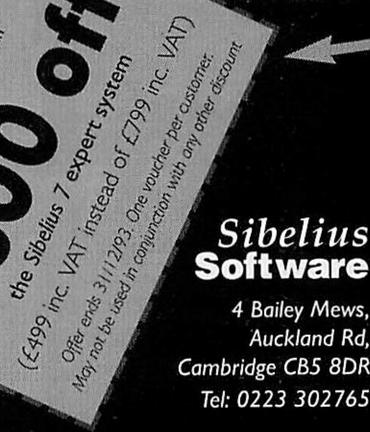
☐ Enter me for the special prize draw to win a free copy of *Sibelius 7**

Name:
Address:

Postcode:
Telephone:

**No purchase required*

AU/12/93



Sibelius 6: £160+VAT

Sibelius 7: £424.68+VAT
with this discount voucher (normal price £680+VAT)

For a free information pack about *Sibelius 6* and/or *Sibelius 7* (with an 8-page feature list and a range of impressive samples), cut out, fill in and post off the coupon above.

You can also enter our **special prize draw** to win a free copy of *Sibelius 7*.

Alternatively, just phone Ben Finn at Sibelius Software on 0223 302765.

Sibelius Software
4 Bailey Mews, Auckland Rd, Cambridge CB5 8DR
Tel: 0223 302765



Oak rephorms the morphing market

HAILED as 'the ultimate Risc OS morphing application', *Rephorm* is Oak Solution's answer to the recently-released *Morpheus* (see review in October).

Looking at *Rephorm* in its pre-release state we found one major feature not included in its rival. This was a thumbnail display which instantaneously produced an animation of the morphing sequence, from low to full resolution with a variable number of frames.

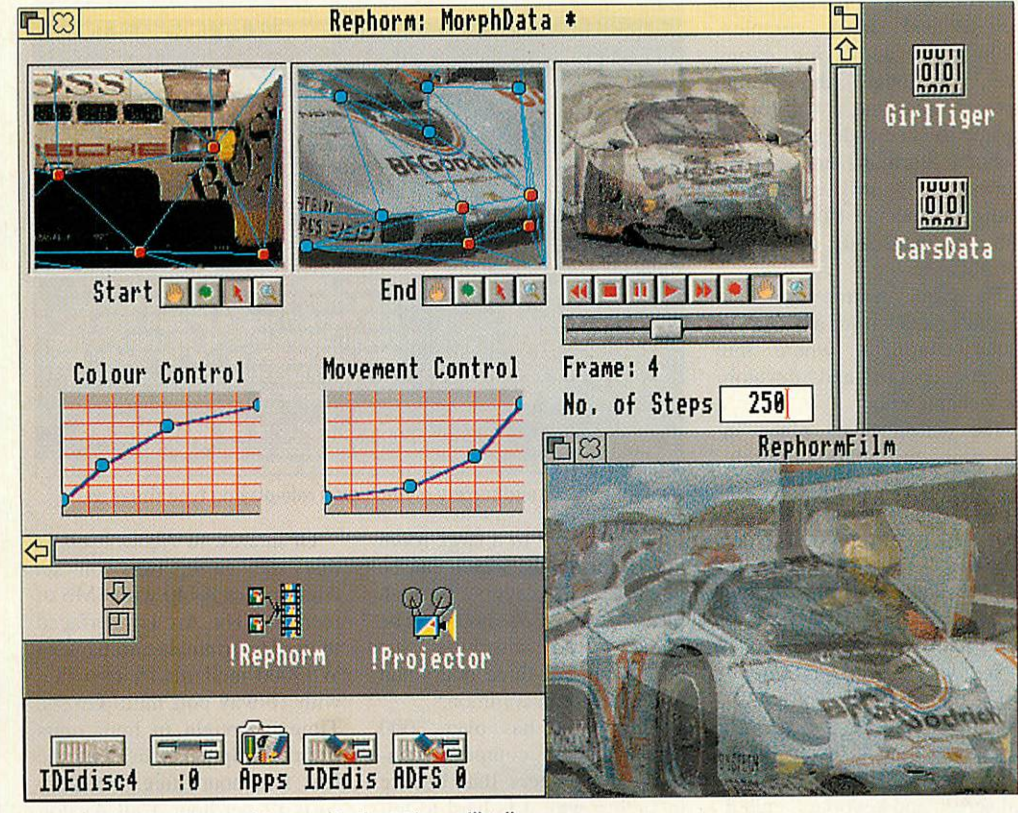
In the design process the extremely fast image generation in the preview box gave enormous control when preparing the film. Not being restricted to previewing just the half-way image, as with *Morpheus*, will make achieving successful results much less of a hit-and-miss affair.

Rephorm is fully multi-tasking, supports 16-bit and 24-bit images and churns out about 30 frames of 160 x 128 mode 28 sprites per minute on an Arm 2, RiscOS 3 machine. The amount of movement and colour change can be varied through the duration of the morph, which can number up to 999 frames.

Any 32-bit Acorn machine can be used to create stunning sprite sequences or editable Ace film animations and without effort using *Rephorm*.

This fast application with all the preview and editing facilities comfortably located in a single window looks to be a comprehensive and well-designed package. But is is worth the extra £15 for *Rephorm* over its only real adversary, *Morpheus*? Well, until the full-release showdown between the two programs we can but wait and see.

Rephorm costs £49.95 from Oak Solutions on (0945) 211760



The ultimate Risc OS morphing application? Time will tell

Picture of the month

THERE were a number of impressive pieces this month, so good that that some get runner's-up mentions. Adrian Dudley from Warley produced a lovely jungle river scene at dusk, and Vera Blandy from Harpenden created an Impressionist-style tree in blossom, using *Paint*.

But the winning pic comes in the form of an *Artworks* file by Grant Naylor from Manchester who carefully transposed an Anime/Manga character from a magazine cover into vector graphic form. No scanning or tracing was used. Redraw times were reduced using a multi-layered approach and colours were individually named for ease of access.

Grant also included a file full of excellent high res icons for the Risc OS 3 Apps and filing system, and custom designed ones for publicly available software.

Clip art sets entrance

THIS month sees the entrance of two major clip art collections. Micro Studio is offering three new graphics library packs of both vector and bitmap images. The sprites pack is designed for educational use and contains dinosaurs and dino-scenes for use with Micro Studio's easy-to-use *ArtSchool Junior* painting package. The Sports and Jurassic clip art packs each contain nearly 100 high quality *Draw* graphics of, you guessed it, dinosaurs and sports images.

Lynsoft's collection has been developed solely for the Acorn platform, with monochrome printing and background imagery in mind. The themes of sci-fi, fantasy and horror were translated not from antiquated PC files but scanned direct from professional illustrations. The artwork was produced by four artists usually commissioned by magazines and short-story publishers specialising in science fiction and horror. All images are black and white, mode 15, 18 or 20 and number up to 30 on each disc. The collection should contain about a dozen discs when complete.

Sports and Jurassic packs £29.95 each, Jurassic clipart for ArtSchool £9.95 from Micro Studios on (0353) 720433; sci-fi, fantasy and horror clip art is £8 per disc from Lynsoft on (0287) 624843.



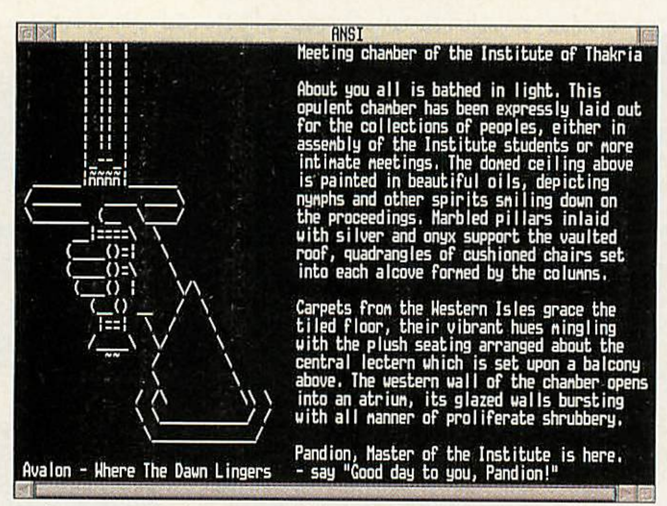
Get yourself lost in Avalon

AVALON is probably the largest and most complex multi-user role-playing game ever. Although the game opened three and a half years ago, with core code written by Yehuda Simmons and Daniel James, it is still expanding with ideas from the enthusiastic band of game controllers.

The game centres around a mythological world: a Tolkien-esque continent, where the players choose and develop their characters.

The action takes place in real time, and although purely a text-based description technique is used, quick reactions and fast typing skills are needed to become proficient. Players have found their typing speed improving at a remarkable rate by playing.

Avalon can be played in two ways: online by modem, dialling into the London system which has over a dozen lines, or by booking time at a terminal screen and keyboard, called Hostplay, in the comfortable London office. In a large room are 16 terminals, which can be booked by players through most of the 24 hours. The game is so absorbing that online calls of three hours and more are not uncommon.



Avalon: a sword and sorcery mythological role-playing type situation

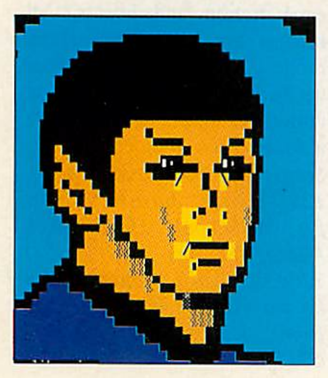
This game has over 3000 locations, and computer controlled characters that behave in such a way it is hard to tell them apart.

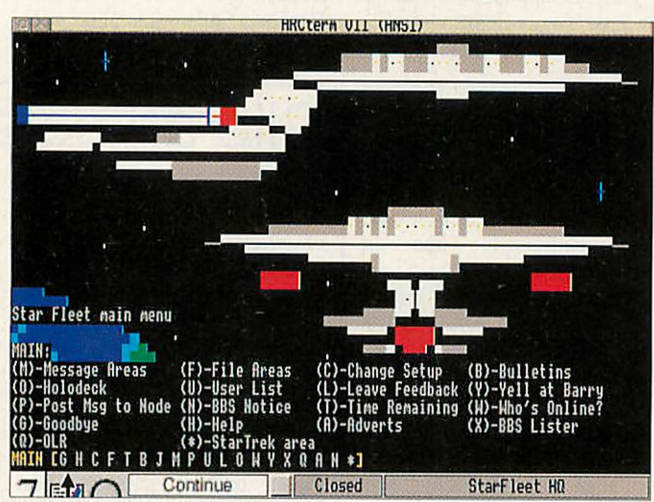
Of interest to Acorn users is that the game runs on an Archimedes A440 with 8Mb of memory. The Arc is interfaced to the 16 terminals and bank of WS3000 modems by two PCs with 16-way port multiplexers. Time is bought in hour units from 50-75p per hour, with the first five hours free, Hostplay costs £1 per hour. Call Avalon office on 071-813 3312.

Boldly go where no Arc has gone

STARFLEET HQ is an Amiga-based BBS for Star Trek fans everywhere. Sysop Barry Ashcroft, is keen to attract users of PC and Acorns too, and has opened file and message areas for Acorn users. He is looking for two Acorn Trekkies to manage and build the Acorn area.

You log on as a cadet, there are stardates to enter and subspace messages to read. StarFleet HQ BBS is in Widnes and is connected to FidoNet as node 2:250/236.0 and TrekNet as 170:1701/5 – significant to Trekkies.





Starfleet HQ: enough stats to satisfy the most ardent Trekkie

The Amiga file areas are packed with Trek picture and sound files, episode listings and lots of other Star Trek, The Next Generation and Deep Space 9 information.

If you are interested in helping Starfleet HQ in developing the Acorn section, or if you would just like to have a go at the Star Trek Experience, then call StarFleet HQ, at speeds up to 14400bps. (Supra V32bis users please stick to 9600) on 051 420 6272.

In brief

Whyalla way time

Sysop Peter Russell sends news of his Whyalla Schools Bulletin Board System running ARCbbs on an A5000. Whyalla is 400km by road from Adelaide, South Australia. The BBS allows access to the worldwide K12 Educational conferences.

Whyalla Schools BBS is also connected to the Archimedes Echo message conference and is FidoNet node 3:800/813. The BBS caters for speeds up to 14400bps 8N1, and if you fancy a direct call, the number from the UK is (010) +61 86 44 1088.

Pole position

North Star BBS is in Buxton, at the home of Sysop David Goodchild. The ARCbbs system runs on an ARM3 A440/1 with an additional outboard 101Mb SCSI drive, and V32bis FaxModem. The BBS filebase has over 200 files for download. Acorn interest Echomail and Netmail areas will be operational by the time you read this. North Star is on (0298) 22576 at speeds up to 14,400bps 8N1 and is online between 10.30pm and 8am (24 hours soon) seven days a week.

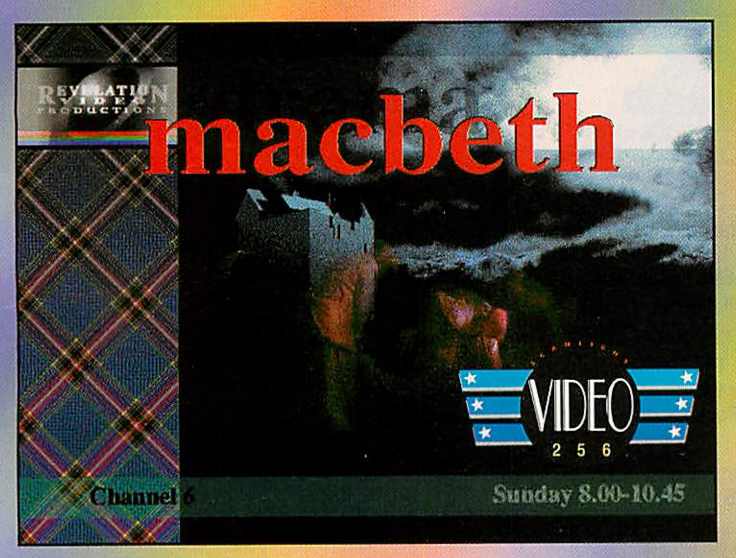
Out of the archive

Archive BBS, one of the pioneering Acorn bulletin boards, and the organ of Norwich Computer Services, is back. Sysop Matthew Hunter, has quite a job as not much of the old system remains. The main function will be to offer technical support and services for the NCS range of products, as well as holding the Archive magazine disc as a download. Call (0603) 766585.

Contact me by writing to: David Dade, Acorn User, 101 Bayham Street, London NW1 0AG or by email to: DaviD@arcade.demon.co.uk, or by MODEM on Arcade BBS, User #2 - 081 654 2212 or 081 655 4412.

Graphics processing with Wild Vision and Longman Logotron

Save over £60 with our special combined offer of greyscale digitiser, scanner and state of the art paint and image processing



Wild Vision together with Longman Logotron have combined their latest technology to make you an offer that will excite the most discerning artist. Put your artistic dreams into reality with the latest development in scanning and image processing.

ScanLight Video 256 is a combined greyscale video digitiser and scanner for the Archimedes. It is the ideal tool for capturing images from real-life scenes to incorporate into computer graphics work. Using only one expansion slot, it allows connection to either a 400dpi handheld scanner (supplied) or to video from any composite source - such as VCR camcorder or still video camera. A viewfinder application enables a live moving image to be seen on the screen so that you can choose precisely the moment from your video film which you want to capture. Included in the package is all the necessary hardware and software to obtain images originating from 2-D as well as 3-D sources. Yet the entire process is conducted from just one single-width expansion card to save you expansion space as well as pennies.

When combined with the professional quality image processing power of Revelation imagePro, your results will be stunning. Revelation imagePro is a paint and image processing package with a powerful range of functions. It's surprisingly easy to use allowing you to concentrate on creativity. You can combine a number of deceptively simple procedures to create professional quality effects, integrating imported images with drawn elements, patterns and text. The resulting images can be appreciated in their own right, or imported into other applications such as DTP and Multimedia packages.

PACKAGE PRICE ONLY £299.00 EX VAT (INCLUDES FREE P&P)

Revelation image Pro

- Create sprites in 2, 4, 16 0r 256 colour modes (including new standard palette high-resolution modes now supported by third party graphics cards).
- Tools include user defined brushes, sprays, bristle and other painting effects.
- Over 100,000 dithered colours under RISC OS 3.
- Fully editable graduated blends giving antialiased effects, directional graduations and image superimposition.
- Variable sensitivity tracing, blurring, sharpening, dithering and mosaic effects.
- Control over hue, saturation and contrast on whole images, selected colours or selected areas.
- Internal colour processing at 24 bits per pixel (dithered onto standard 8 bit sprite).
- Tint, RGB and CMYK colour modes.

ScanLight Video 256 combined grey scale digitiser and scanner

- A video digitiser and scanner combined on a single-width Archimedes expansion card - uses only one slot!
- 400dpi handheld scanner included
- Grabbing the right video image is easy with the real-time desktop viewfinder; then crop, scale or rotate using ScanLight Plus image manipulation software
- ColourCard compatible - view images live and grabbed in their true 256 - grey palette, for incredible smoothness of shading and photo like clarity
- Choice of grab sizes, 768 x 288 (TV-shaped) or square (up to 512 x 512 resolution)



Longman Logotron
124 Cambridge Science Park
Milton Road
Cambridge CB4 4ZS
Tel: 0223 425558
Fax: 0223 425349



Wild Vision
15 Witney Way, Boldon Business Park,
Boldon Colliery,
Tyne & Wear NE35 9PE
Tel: 091 519 1455
Fax: 091 519 1929

SPECIAL OFFERS on Acorn Computers from BEEBUG



A3010

The A3010 is the entry level 32 bit computer. It comes with RISC OS 3.1, 1Mb memory expandable to 4Mb, 1.6Mb floppy drive and mouse. A hard drive can also be added if required. Monitor not included.
Our price includes the Action Pack ***FREE*** as described below.

SPECIAL OFFER
- Lemmings and Chuck Rock complete Games ***FREE***
Only £339 ***Save over £35.00***

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Memory to 2Mb £29 or 4Mb **£129**



A4000

The A4000 is the mid-range 32 bit computer. It includes RISC OS 3.1, 2Mb memory expandable to 4Mb, 1.6Mb floppy drive, 80Mb hard drive, colour monitor and mouse.
Only £849

SPECIAL OFFER - The Learning Curve Pack FREE **Save over £42**
OR The Home Office **Pack for only £35**
Save over £50

Options - Multi-scan monitor **£42.**
Memory to 4Mb **£85**



A5000

The A5000 is the top of the range Acorn 32 bit computer. It comes with RISC OS 3.1, ARM 3 33Mhz super fast processor, 2Mb memory expandable to 8Mb, 1.6Mb floppy drive, 80Mb hard drive, multi-scan colour monitor and mouse.
Price £1275

SPECIAL OFFER - The Learning Curve Pack ***FREE*** ***Save over £42*** *OR*
Ovation DTP and Word processor
Save over £95 *OR*
The Home Office Pack ***for only* £25**
Save over £60

Options -
A5000 with 4Mb memory and 162Mb hard drive **£1445**
A5000 with 4Mb memory and RISC Dev. 260Mb or 450Mb hard drive **£1595 / £1775**
Memory upgrade from 4Mb to 8Mb **£349**

The Learning Curve Pack

FREE

This package is ideal for the home. It includes Advance, the new integrated word processor, spreadsheet, database and graphic suite. In addition DR DOS 6 and the PC Emulator are included to enable you to run DOS programs. An audio training tape and demo versions of another 8 educational programs are included.

The Action Pack



This pack is now supplied with all A3010 systems. It includes the arcade game Zool, a powerful word processor with spelling checker called Startwrite and an audio training tape along with demos of four other games.

The Home Office Pack

An excellent pack for the professional looking to use the computer for more serious applications.
It includes Pipedream 4, EasiWriter, DataPower, DR DOS 6 and the PC Emulator. Also included is an audio training tape and demo versions of Prophet Accounts and Almanac personal organizer.

Portables

The A4 system is a similar specification to the A5000 but in a portable format. In its base form it is supplied with 2Mb RAM and no hard drive.
Price £1399

SPECIAL OFFER - spare A4 Battery Pack ***FREE Save over £50***

Options - A4 with 4Mb memory and 60Mb hard drive **£1675**
- A4 with 4Mb RAM and RISC Dev. 120Mb or 210Mb hard drive **£1807 / £1917**

The Acorn Pocketbook is a hand-held computer with built-in wordprocessor, spelling checker, spreadsheet, database and calculator. With the A Link it can be used to transfer data to other Acorn systems.
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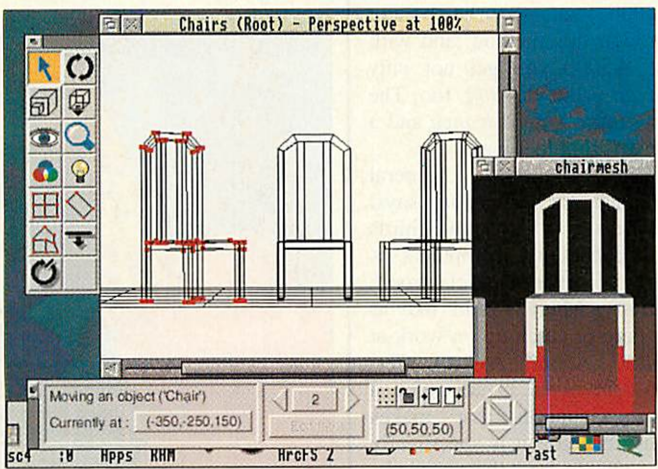
Raytracer editor for PD

UNTIL now most PD ray tracers have been almost impossible to use, due to the lack of a proper editor. *3D Editor*, by Simon Wilkinson goes some of the way to making PD raytracing a viable alternative to the expensive commercial programs available from Clares.

The editor is based around a single display window and a couple of tool bars which allow quick access to the object and polygon manipulation controls.

Shapes can be moved, rotated or extruded simply by dragging points on the main window, and options for light source creation and colour choice are also fairly simple to use. Anyone who is familiar with *Artworks* will find they are perfectly at home with the *3D Editor* window system, which is very similar.

At the moment, files can only be exported to *QRT*, *Draw* and the *Acorn User* ray tracer, although Simon is planning to expand this range to cover other ray tracers.



The editor is based round a single display window

Although not yet perfect in terms of ease of use and speed of window update, *3D Editor* is still under development, so it is a utility to look out for over the coming months. With the introduction of import and export facilities which support *Illusionist*, *Render Bender* and the other PD tracers this could become an essential 'buy' for any 3D artist.

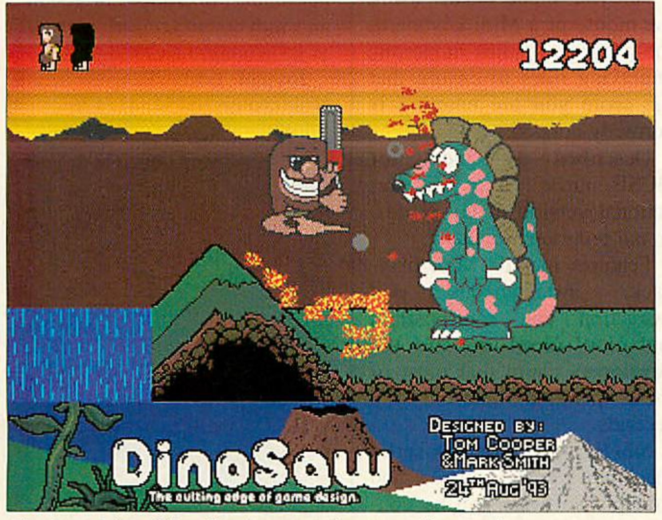
3DEditor is available from the Datafile on disc UT99, and the latest versions can be obtained from Simon Wilkinson, 29 Kinloch Street, Carnoustie, Angus, DD7 7EL, for £1, a disc and an SAE.

Try a monster game

FOR anyone who has enjoyed Tom Cooper's games before, *Dinosaw* has to be a must.

Set in the cartoon style of Tom's other games, *Dinosaw* pits you as a chainsaw-wielding caveman against dinosaurs and birds. The idea is to extinguish as many species of dinosaur as possible.

The full shareware game costs from £5. An updated demo should be available by the time you read this. *Dinosaw* (the demo) is available from the Datafile on disk GA39. Tom can be contacted for the full version at 187 Abingdon Road, Middlesbrough, Cleveland, TS1 3JU.



DinoSaw: A lot of fun, if not very environmentally sound

WinScreen new view

THIS is one of those little utilities that seem strange to use at first, but leave you wondering how you ever managed without them.

A cluster of little buttons on the iconbar allows nine different desktop screens to be viewed. When you change to a different screen, all the windows on the current screen are stored, and will be brought up if you return to the original.

Windows can be moved from screen to screen with a few simple clicks, and hot keys are also included to allow quick screen changes. This is an original substitute to using the hi-res multisync mode 102, which doubles the desktop work area, but requires an expensive monitor.

Considering *WinScreen* can be bought for the price of a disc and a stamp, you can't really go wrong.

In brief

Competition time

German demo writers Qarc and PCP are organising a demo competition for the best demo, coder, artist and musician. Any demo or animation written for release as PD can be entered, as long as it is not released before the closing date, 1 February 1994. Cash and software prizes will be awarded at Cebit 94, or by post. Contact Joachim Schneider, Hinter dem Schloss 2/2, 72108 Rottenburg, Germany.

PRM Index 2

Version 2 of the PRM index utility is available from Datafile (disc UT98) or Hensa on the Internet. Support is given to both OS 2 and 3 manuals and searching of key words is fast.

PD Library

Each month, where I focus on one of the many Arc PD libraries. This issue it's Datafile PD, run by Dave McCartney.

The Datafile is one of the largest Arc libraries, nearly 800 PD discs all on a gigabyte of hard disc. A catalogue with ordering facility should be ready in the new year. Discs cost £1.25 each from 71 Anson Road, Locking, Weston Super Mare, BS24 7DQ. [A profile of Dave appeared in the September issue of *Acorn User*.]

Scene

Despite the move by many former PD groups to work on commercial software for release at Acorn World, the number of PD and shareware releases has remained high. Plenty of new utilities and serious PD programs are entering the scene. Demos and PD games are not as popular, but support for the scene by PD authors is good news.

Write to me, Paul Wheatley, with PD news or programs to review, at the usual *Acorn User* address.

Would you credit it?

ACORN is hoping to give added impetus to its Assist scheme by offering free software to teachers who purchase hardware via its low-cost finance option.

If, for example, you buy an A3020 and put down a 10 per cent deposit, you pay £33.93 a month for two years (at an APR of 13.75 per cent) and get a *gratis* copy of *Advance*.

Introduce a friend to the scheme and you receive points towards a free gift, to be chosen from a rather predictable selection which includes a 21-piece tool set, a radio alarm clock or a ladies or gents wristwatch.

All Acorn products, from the Pocket Book through to the A5000, can now be bought through this method, and with the A5000 you get not only *Advance* but *PC Soft*, too. The A4 comes with *Advance* and a 'smart' shoulder bag.

Peter Talbot, general manager for education, says: 'Our research shows two-thirds of teachers use computers as part of everyday classroom activity. Many would like to prepare or catch up on work at home. Acorn Assist offers those involved in education a finance option that makes sense because it is specifically designed to meet their needs.'

For details of the scheme, which runs until the end of the year, call (0800) 400800 and ask for an Assist Pack.

French without tears

A FOREIGN language version of Semerc's wordprocessing and DTP package *Phases 3* is now available. *Phase à la Francaise* is designed to immerse Key Stage 3 pupils in French, while developing IT skills. All menus, and messages are in French. Le prix is £24.

Semerc, with Cumana, has introduced a pack to turn an A4000 into an A4000S. Consisting of an expandable multi-use base board and user port, plus A4000S software, documentation and manuals, the kit is easy to fit. The pack costs £119. Semerc is on 061-627 4469, Cumana (0483) 503121.

ADFS::PhaseFr.$.Work.JeSuis *

Bonjour mes amis

Salut! Je m'appelle Sophie. J'ai douze ans. Je suis né à Paris mais maintenant j'habite à Nimes en France.
Je parle Français et peu d'Anglais.
Je cherche une correspondante de 12 à 14 ans.
J'aime la télé, les films comiques, le sport et les animaux.

Et toi .....?

Semerc's new package is even more francophile than Peter Lilley

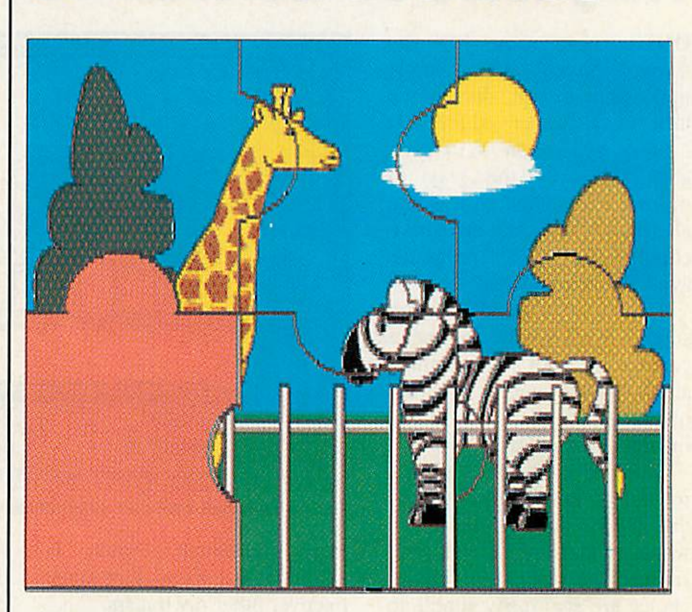
Just drive away

NORWICH Computer Services is selling removable A5000 drives which are fast, compact, high capacity and, at £399 + VAT for the complete kit, are cheap. Each can hold 105Mb of data in a cartridge the size of a normal 3.5in floppy disc; just take it out and drop it in your pocket.

There is also a SCSI version at £439 + VAT. For other Arc users, NCS has 105Mb external SCSI drives for £509 + VAT. Extra cartridges cost £69, again plus VAT.

For further details on the various drives, call Norwich Computer Services on (0603) 766592.

Jumble sale for kids



DESIGNED for pre-school and special needs children, *Jumble Fun* is a new Arc program from Honormead.

It has two levels – Jigsaw and Picture Jumble – and works well with switches and touchscreens. A supporting disc has extra topical jigsaws, and pictures can loaded from other applications, including Honormead's *Scribble*.

Also available are project packs full of 'stamps' or images which can be used to enhance children's work. Themes are the farm, space, dinosaurs, Christmas and miscellaneous.

Jumble Fun costs £15.95 and *Scribble* is £29.95. Both prices include a site licence. Honormead is on (0332) 512848.

Score drawer

SIBELIUS *6* is a piece of software for processing and printing music.

As you input music using the mouse or a Midi keyboard, the program applies numerous engraving rules to ensure that the score you are entering is correctly notated.

Described as 'ideal for GCSE music', it is an educational version of the professional program *Sibelius 7*.

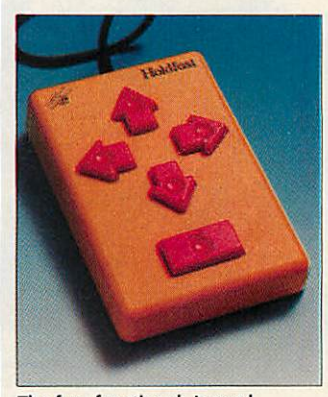
Features include Midi playback, instantaneous part extraction and transposition and fast screen redraw; the developers claim that most of these operations take only 0.1 seconds.

Sibelius 6 for A-series machines costs £160 and Sibelius Software can be contacted on (0223) 302765.

Hold tight

AN ALTERNATIVE to the mouse has been launched for the A3010. The Joypad plugs into the games joystick port. It suits handheld, tabletop or floor use and can be used for one-button operation, direction and movement control, as well as full-mouse emulation.

Joypad costs £24.99 from Holdfast on (0454) 411126



The fun, functional, Joypad

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Beebug is a large reliable company, not a faceless box shifter, so please feel welcome to visit our large, well-equipped showroom in St Albans to try the latest products. Showroom hours are Monday to Saturday 9am to 6pm, and until 8pm on Thursdays.

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0676c	3.5 x40 1Mb Discs + Box	BEEBUG	23.33
0632c	3.5 x50 Bulk 1Mb Discs	BEEBUG	22.50
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0672b	Disc Box for 3.5 (10)	BEEBUG	1.69
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5646c	Lockbl 3.5 Disc Box (80)	BEEBUG	8.47

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5851g	A4 60Mb HD Upgrade	Acorn	350.00
5296g	A5000 162Mb 2nd Drive	RISC Dev	219.00
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5882g	Multi I/O 120HD IDE	Greyhound	TBA
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0569b	Printer Lead 1.8m Arch	BEEBUG	5.91
0425b	Printer Lead 2m Arch	BEEBUG	7.62
0424b	Printer Lead 3m Arch	BEEBUG	8.47
0578c	Printer Lead 5m Arch	BEEBUG	16.98

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0545d	Screen Filter 14 C.Fibr	BEEBUG	24.64
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4601e	A3000/3010 Ethernet Card	RISC Dev	139.00
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5641d	Paper 9.5x11 1pt 70gsm	BEEBUG	13.00
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0455d	Paper A4 70gsm 1-part	BEEBUG	14.40
5643d	Paper A4 90gsm 1-part	BEEBUG	12.60
0421c	Photocopy Paper	BEEBUG	3.36

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0584b	Flash Disc 256K	Acorn	59.53
0588c	Flash Disc 512K	Acorn	85.06
0587b	Mains Lead -Pocket Book	Acorn	12.72
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0591b	Pocket Book Desk Stand	Widget	13.61
0589b	Pocket Book Finance Pack	Widget	59.53
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0583b	RAM Disc 128K -Pocket Bk	Acorn	51.02
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0539c	Print Sharer 4 to 1 Auto	BEEBUG	42.55
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0378g	Epson LX400 Printer	Epson	136.13
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0461g	HP Deskjet Portable	HP	295.00
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0913c	Arc-PCB	Silicon V	99.00
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5919b	Jiglet	4Mation	19.00
1150b	Jigsaw	4Mation	19.00
1949c	Kid Pix	ESM	34.00
5497b	Morpheus	Oregan	28.00

High Density Floppy Disc Controller from RISC Developments

This half-width expansion card allows Archimedes A310, A400 series and A540 computers to use high-density floppy discs as provided by the A5000 and newer machines.

Code 4631e	High Density Floppy Disc Controller and Drive	£159.00

5937b	Poster	4Mation	75.00
1095b	Presenter GTI	Lingenuity	65.00
5492c	PrimeArt	Minerva	68.00
0944c	Pro-Artisan 2	Clares	110.00
5509b	Render Bender II	Clares	75.00
5498b	Rephorm	Oak	49.00
5472c	Revelation II	Longman	74.00
5490c	Revelation ImagePro	Longman	125.00
5938b	smArt	4Mation	50.00
1912b	SolidsRender	Silicon V	78.00
1941b	SuperPlot	Silicon V	24.80
5512c	Titler	Clares	117.00
5940c	Vector	4Mation	75.00

INTEGRATED PACKAGES

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5427b	DeskTop Office II	Minerva	74.00
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0901c	Pipedream 3	Colton	71.00
0990c	Pipedream 4	Colton	118.00

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1907b	Cambridge Pascal	Oak	89.00
0946c	Desktop Assembler	Acorn	118.00
0945e	Desktop C	Acorn	178.00
0100b	Easy C	RISC Dev	49.00
0110b	Easy C Upgrade	RISC Dev	10.00
0905c	Logo	Longman	54.00
0895c	PC Emulator V1.8	Acorn	92.00
1906b	RiscBasic Compiler	Silicon V	77.00
5428b	RiscForth	Silicon V	77.00
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5576b	ARCticulate	4th Dimens	19.00
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1971b	MicroStudio	EMR	66.00
0835b	Notate	Longman	42.00
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5486c	Rhapsody 3	Clares	77.00
1939b	Rhythm-Bed	Clares	38.00
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5457b	Sound Tracker	Leading Ed	36.00
5519b	Speech! Arch	Superior	16.00
5459b	Voice Generator	MJD	30.00
5513b	Vox Box	Clares	45.00

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0095b	HP Deskjet Colour Driver	RISC Dev	15.00
0090b	Star/Epson Colour Driver	RISC Dev	15.00
1940b	SuperDump	Silicon V	19.00
5505c	Turbo Driver - BJ Series	CC	42.00
5508b	Turbo Driver -HP Deskjet	CC	42.00
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5511b	Turbo Driver-Epson Styls	CC	42.00

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0901c	Pipedream 3	Colton	71.00
0990c	Pipedream 4	Colton	118.00
5455b	ProSHEET	Silicon V	39.00
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5446c	Almanac	Stallion	57.00
0957b	Ancestry	Minerva	58.00
1946b	ARC-DFS	Dabs P	21.00
5877b	Armlock	Digital	35.00
5878c	Armlock 10 User Licence	Digital	139.00
5913b	Chatter	4Mation	33.00
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5456b	Disc Rescue	Look	28.00
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5445b	Invstgator II RISCOS 2	Leading Ed	21.00
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5876b	Noise Killer	Greenware	27.95
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5917b	DBEdit	4mation	28.00
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5507c	EasiWriter III	Icon	132.00
1112c	Impression Style	CC	97.00
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5372c	Pinpoint Site Licence	Longman	386.00
5384c	Pipedream 4 Site Licence	Colton	696.00
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5369c	S-Base Site Licence	Longman	400.00
5382c	Squirrel 2 Licence	Digital	556.00
5416e	Wordz Primary Licence	Colton	198.00
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THE ACORN USER

A complete OCR package, the boy with bottomless pockets, a desktop address book,

SCRIBE

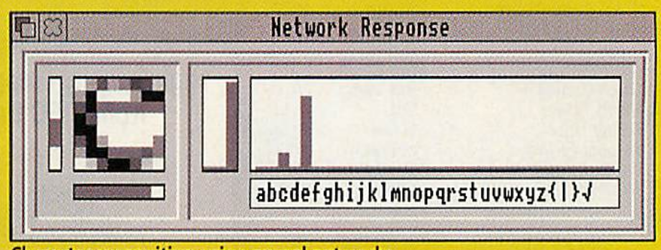
A complete OCR package? Start with Scribe and you'll never want to type again

OCR has long fascinated computer users, and now you can convert your scans to text without having to shell out a fortune on software. *Scribe* is a complete OCR system, exclusive to *Acorn User*: this is not a demo, it's a complete package.

OCR enables you to teach your computer to read. All you need is a scanner to read pages in as sprites: *Scribe* then converts these scans into text files, which you can load into your favourite word processor or DTP package.

Possibly the best feature of *Scribe*, which sets it apart from any commercial packages currently available, is that you can teach *Scribe* to recognise any fonts. Potentially, therefore, *Scribe* can convert any text in any font, as long as you have the time to educate the software. *Scribe* uses artificial intelligence methods to recognise letters, and you can teach *Scribe* new networks to translate any letter shapes you want. These networks can be saved in so-called network files, one for each font.

On the disc you'll find the complete *Scribe* application, which contains one network file for the Times font (that's Trinity in Acorn parlance). There is also an example sprite file containing a scan in Trinity, so if you don't own a scanner you can still see *Scribe* in action.



Character recognition using neural networks

Over the next couple of months we'll provide more network files for popular fonts, and the author, Robin Barnes, will explain how *Scribe* manages to recognise characters so efficiently. For more details on using *Scribe*, see page 44.

MAGIC POCKETS

Discover the mysteries of the Bitmap Kid's pockets in this month's monster demo

It's the latest blockbusting conversion for the Acorn, and with our exclusive demo you can experience the mind-bending world of *Magic Pockets*. The demo contains the first level, and shows why the Bitmap Brothers' wackiest game will be huge.

You play the Bitmap Kid, pretty much like every other kid on the block until a Strange Old Man gives him his Mystical Trousers. Like most mystical trousers, these have magic pockets; when a kid's got bottomless pockets, he's so cool it hurts.

But one day, something terrible happens. The Kid can't find his best toys: they disappear into the depths of his pockets. Being so cool, he doesn't panic, but jumps into his own pockets, to search for his lost possessions.

The Kid isn't defenceless. He's got Pocket Power, which means he can reach into his pocket and chuck a whirlwind at anything in his way. You can chuck a whirlwind by pressing RETURN, and the longer you hold down RETURN, the bigger and more destructive the whirlwind. The fist on the bottom-right of the screen is a power meter for your Pocket Power, and if you throw the most powerful whirlwind at a baddie, it gets trapped inside. You move over it and get a bonus.

The idea behind each level is to reach the Best Toy, at the exit. When you use Pocket Power, an arrow shows the direction to the exit: . Your lives are shown as fingers at bottom-left of the screen, and you kill yourself pressing ESCAPE. Controls are as follows:

Z Left
X Right
' Up
/ Down
RETURN Fire
F1 Pause
SPACE Resume
F3 Redefine keys

Important note: as it uses so much memory, it is not possible to exit without CTRL-BREAK, so don't play without saving

COVER DISC

a cheat library, Xmas clip art, extra Omnidesk features, and more . . .

TELEPHONE AND ADDRESS BOOK

An easy-to-use, multi-tasking address book packed full of useful features

TelAddr is a multi-tasking telephone and address book. It allows you to store up to 256 records, each including name, address and telephone fields. To start, type in an address (remember you can use the up or down cursor keys or RETURN to move through the fields). Now create another record by clicking on the add record icon on the toolbox. The position icon changes from 1/1 to 2/2; the first means you are viewing the second record, and the other number means the number of records is two.

Instead of using the position icons to move around the address book, you can also go to a specified record. Click Select on the arrow icon on the right of the position window and type in the record number.

Searching

By clicking Select on the search icon on the toolbox (first one down), or by choosing Search... from the search submenu, the search window will open. The search string should be entered and case sensitivity can be selected.

Saving and loading

To save the address book, open the save book box from the save submenu, or press F3. From here you can choose whether to save as a *TelAddr* file, or a text file. displayed record alone (press CTRL-F3). to include telephone/fax numbers or not, and whether you wish to add commas and full stops automatically. Also, after performing a search, you can then save the matched records as before in either format. The hot-key for this function is SHIFT-F3 or you can use the Save submenu. You can also save into other applications such as *Edit*.

Double-clicking on a *TelAddr* file instructs the program to load that address book over the top of the current one. But if the file is dragged either to the main window or the program icon, the file is appended (merged) to the end of the current one.

Address Book
Name: Computer Concepts Ltd
Address: Gaddesden Place
Town: Hemel Hempstead
County: Herts
Country: England
Postcode: HP2 6EX
Home: (0442) 63933
Work:
Fax: (0442) 231632

Look up the home address of your favorite software packages in a flash

Preferences

The preferences window contains a list of options to configure *TelAddr.* For example you can set the default search options, set the default save options, choose a default address book, and even choose a default country. Most of the options are self-explanatory, but you can use Acorn's *Help* to obtain extra information. In fact since *TelAddr* supports the *Help* application it can be used to obtain information about any part of the program.

CLIP ART

Beginning our new clip art collection, something for the season of goodwill

Christmas is a comin', and what better way to celebrate than with the launch of a totally new column. Nigel Gatherer is a graphic artist from Edinburgh, and each month the *Acorn User* disc will include original and exclusive clip art files from Nigel himself.

Every month will have a theme, and this month the theme is Christmas. No excuses now not to send Christmas cards: you can print your own, and even make up your own beautiful poems for those you love. Isn't life a dream.



OMNIDESK

More useful tools in this month's Omnidesk: SWI Index and Form Sizer

This month's *OmniDesk*-compatible utilities should prove invaluable to programmers. As with all *OmniDesk* utilities, you can either run them on their own by double-clicking on them in the normal way, or you can copy them into the *Utilities* directory within *OmniDesk*, in which case they will install themselves as part of it. As with all *OmniDesk* utilities, *SWI Index* and *Form Sizer* provide very extensive interactive help via the Acorn's *Help* application.

SWI Index

First up is *SWI Index*. This has a dual purpose of being both an electronic index to the Programmer's Reference Manual, and also providing a complete listing of all the software interrupts (SWIs) available in the machine. When you run *SWI List*, a window appears for the first alphabetical module in the machine (often ADFS). All the SWI calls provided by the module are shown in the main window, in both name and number form. If the module is documented in the PRM, a page reference will also be displayed for each call.

Clicking Menu over the window brings up a menu with various options. Choosing a different module from the Module index submenu will cause the main window to update to show the calls provided by that module.

SWI Index

ADFS

SWI Call	SWI &	PRM Page
DiscOp	40240	2-279
HDC	40241	2-280
Drives	40242	2-282
FreeSpace	40243	2-283
Retries	40244	2-284
DescribeDisc	40245	2-286
VetFormat	40246	2-287
FlpProcessDCB	40247	2-289
ControllerType	40248	2-290
PowerControl	40249	2-291
SetIDEController	4024A	2-293
IDEUserOp	4024B	2-294
MiscOp	4024C	2-296
ECCSAndRetries	40250	2-297

Sort out your SWI calls, with the latest Omnidesk utility

If you load or kill off any modules after running *SWI Index*, choosing the first item in this submenu, Re-scan modules, will update the menu.

The PRM page index menu contains three index files, for the Arthur, Risc OS 2 and Risc OS 3 versions of the Programmer's Reference Manual. These are actually more accurate than the printed indices provided with the manuals. Selecting the edition which you require results in any page references in the main window changing as appropriate. Save settings will save the edition you wish to use. It is possible to save the SWI calls provided by any module as a text file via the Save SWI list save box.

Form Sizer

When writing multi-tasking applications, it can be a really nasty job to find out exactly how much space to reserve for your window definitions.

Form Sizer can not only tell you the amount of space you need, but also provide a detailed analysis of the contents of your template files. Dragging a template file to *Form Sizer* presents the following information:

Global template block size indicates the maximum size needed to hold any window in the file. Total indirected data size indicates the total size of all indirected data in all the windows.

For each window in the file, the following information is displayed in the white area at the bottom of the window: window identifier; size of the window's definition; and size of the window's indirected data. This enables you to reserve memory on a window-by-window basis if you prefer.

The program's main menu presents a couple of options in addition to the standard ones. Clear statistics will forget the currently loaded templates, and release any memory they were using.

More interesting is the Save statistics option. This allows you to drag out a text file containing a detailed list of the contents of all the windows in the file. This contains information about the type and contents of every icon in each window, in addition to all the information displayed in the main *Form Sizer* window.

For full details of these two utilities see the disc or use Acorn's *Help* module.

ACORN USER PD SCHEME

Now you can publish your programs without losing the copyright

In case you hadn't noticed, *Acorn User* now has a cover disc, and we want to be able to fill it up with quality software, written by you. The only snag is that some people don't want to send us their programs because they think they'll lose all rights, so we've come up with the *Acorn User PD Scheme*. The scheme runs as follows:

1. You, the author, send your application to us. If it has been released previously (into the public domain, say), then the version you send must represent a significant enhancement over the earlier version (so include the earlier version too).
2. Assuming we want to publish the program, we pay an agreed sum for permission to put it on our magazine disc.
3. The application cannot be released in any form for three months after the magazine appears in the shops. After this fixed period, the copyright reverts to back the author.

THE ARCHIMEDES CHEAT LIBRARY

Become a games master with our huge cheat library

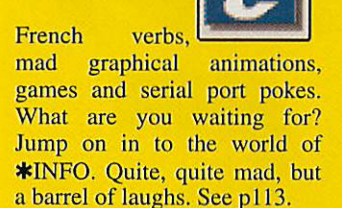
Stuck in *Gods*? Having problems potting the black in *Break 147*? Don't panic – help is at hand in the form of the *Archimedes Cheat Library*, a massive list of cheats, passwords, pokes and bugs for 62 of the most popular games in the Acorn world. The list is constantly being updated, so if you discover any new ways to beat the system, send them in to Dave at the following address .

Dave Lodge
26 Cleveland Way
Carlton Miniott
Thirsk
N. Yorks.
YO7 4LN

The games covered by the cheat Library are: Aggressor, Air Supremacy, Alerion, Apocalypse, Axis, Ballerena, Bambuzzle, Blitz, Blowpipe, Break 147, Bughunter, Bughunter in Space, Chuck Rock, Cycloids, DropShip, E-Type, Enter the Realm, Fervour, Fred, Galactic Dan, Gods, Grievous Bodily 'Arm, Guile, Hostages, HoverBod, James Pond, Kaptain Konflict , Lemmings, The Last Ninja, The Lost Temple, Lotus Turbo 2, Mad Professor Mariati, Man At Arms, Minotaur, MoonDash, Nebulus, Nevryon, Oh No! More Lemmings, Orion, Overload, Paradroid, Pipemania, Powerband, Pysanki, Quazer, RedShift, Repton 3, Repton 4 - Ego, Rockfall, Rotor, Saloon Cars, Spheres of Chaos , Square Route, Super Pool, Swiv, Technodream, Terramex, ThunderMonk, Top Banana, Zarch, Zool and 2067BC.



*INFO



French verbs, mad graphical animations, games and serial port pokes. What are you waiting for? Jump on in to the world of *INFO. Quite, quite mad, but a barrel of laughs. See p113.

BASICS

Learn to program in Basic the easy way: with our Back to Basics course. This month the thorny subject of control statements, starting with IF-THEN. See p109.

Disk problems?

Cover discs are thoroughly tested at each stage of production, but with such a large batch it is possible that one or two faulty discs may slip through. If you should receive a faulty disc it will be replaced free of charge. Send it with your name and address to:
Stanley Precision Data Systems Ltd, Cavendish Courtyard, Sallow Road, Corby, Northamptonshire NN17 5DZ

WANT TO MAKE MONEY?

We want your programs, and we want to pay you for them. We're interested in anything that we can put on our disc, from handy little utlilities to full-blown applications, and we'll gladly hand over the readies for them.

Pop your handiwork on a disc, fill in the coupon, and send it to the address below. Of course, if you don't want to destroy your pristine copy of Acorn User, just jot the details on a piece of paper and send it in. We're not proud.

Please enclose an SAE if you would like us to return your disc.

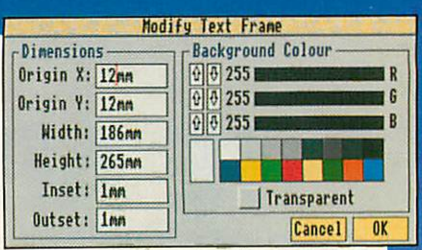
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The User-friendly Desktop Publisher

Ovation



Comprehensive frame handling facilities

Ovation is the acclaimed desktop publisher used on thousands of sites across the country.

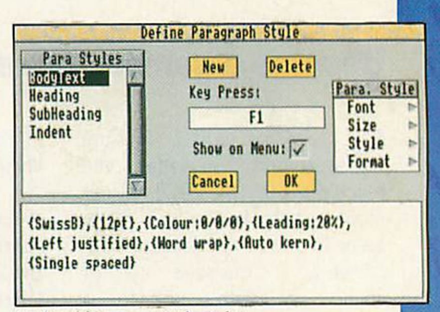
With its superb range of facilities and competitive price it is the ideal choice for all document production ranging from simple letters to complete books. Ovation is acclaimed for its ease-of-use, and we guarantee that in no time at all you will be producing professional-looking documents using a wide range of typefaces in different sizes and styles.

Many of the features you would expect in much higher priced software are provided, but in an easy-to-learn and intuitive to use package. Ovation comes with a 250-page user guide, widely regarded as an excellent introduction to desktop publishing. It includes a concise guide to getting started, a detailed description of all the facilities, plus sections on DTP techniques, document design and printing.

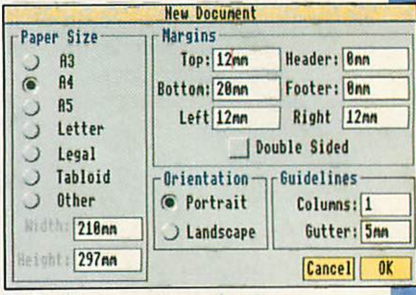
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- KERNING & TRACKING, TEXT HORIZONTAL SC
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- LEFT, CENTRE, RIGHT AND DECIMAL AL

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Ovation £99

A working demonstration version of Ovation without Save facility is available for £5 inclusive (refundable against purchase of full package).

Desktop Thesaurus

An electronic thesaurus with over 17,250 keywords and nearly 182,000 synonyms available in an instant.

Desktop Thesaurus is the ideal companion for all word processors and desktop publishers—or it can be used as a stand-alone program. Simply enter a keyword for a comprehensive list of carefully chosen synonyms, categorised according to parts of speech. Clicking on a synonym gives further alternative words, allowing you to browse through the thesaurus. Desktop Thesaurus integrates fully with Ovation, and allows words to be transferred instantly to other desktop applications.



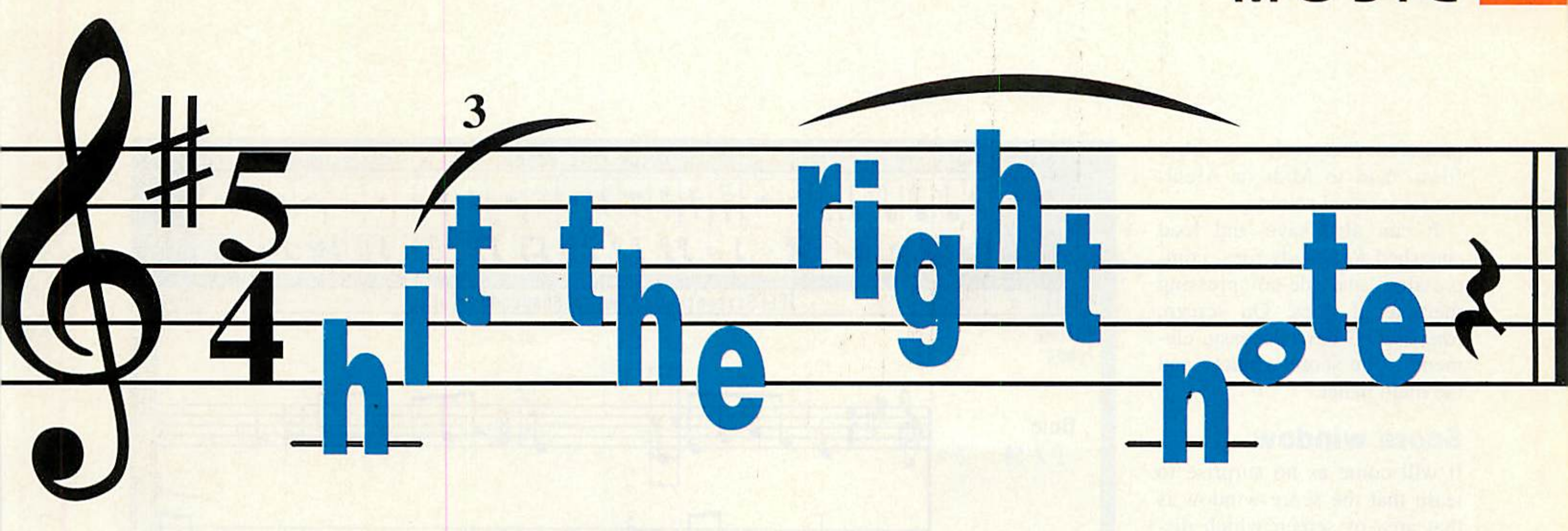
Desktop Thesaurus £19



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Please add £2.70 carriage (£1.70 for Desktop Thesaurus) and VAT to prices. Please phone for site licence & educational prices.



hit the right note

Rhapsody 3 aims to bridge the gap between your computer and traditional stave music. Richard Garrett puts the theory to the test

Standard Musical Notation is the bane of many an aspiring musician. It's not enough that you must bruise your lips or blister your fingers trying to get something vaguely resembling a note out of your chosen instrument but, often as not, you are expected to learn an arcane and often imprecise written language at the same time.

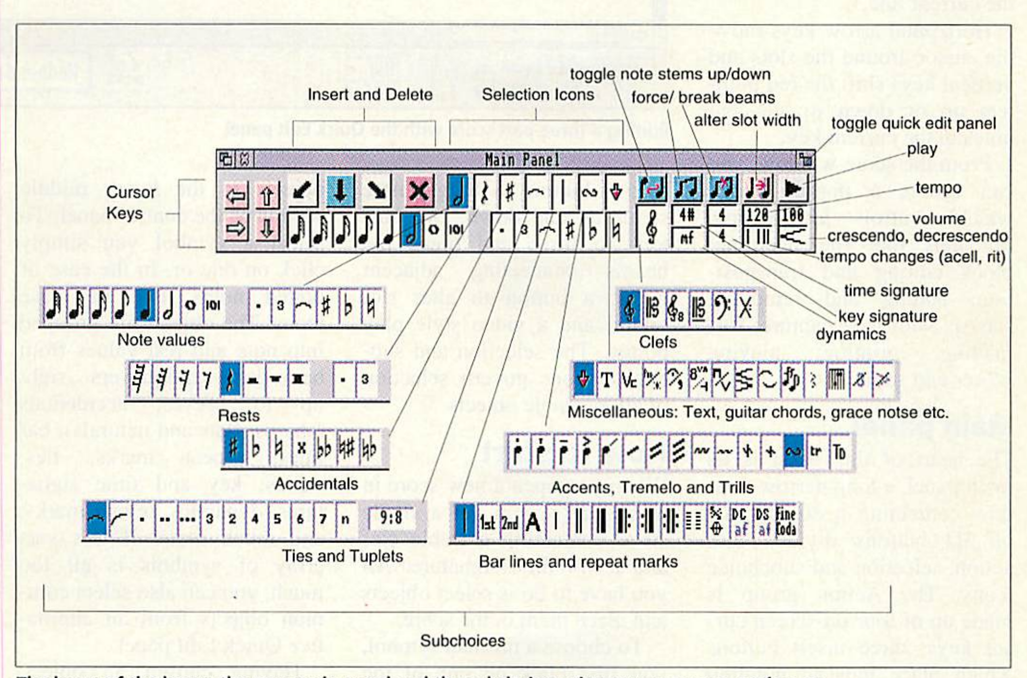
In the same way that algebra often discourages people from learning sciences, many people give up on music even before they start, simply because the dots and lines used to represent it look so weird.

For some time now, musicians among the programming fraternity have tried to ease this problem by developing software that converts written music into sound and sounds into written music. The results of their labours are known generally as score editors and the latest in the Acorn field is version three of Clares' *Rhapsody*.

Overview

Rhapsody 3 is a desktop application which runs under both Risc OS 2 and 3. It requires a minimum 2 Mb of operating memory and, because of this restriction, *Rhapsody 2* will remain available for the foreseeable future.

The program takes input from the computer keyboard; from files in *Rhapsody*, Midi type 0, Midi type 1 and *Maestro* formats; or from Midi devices such as keyboards. It displays and edits the data as stave notation and outputs to



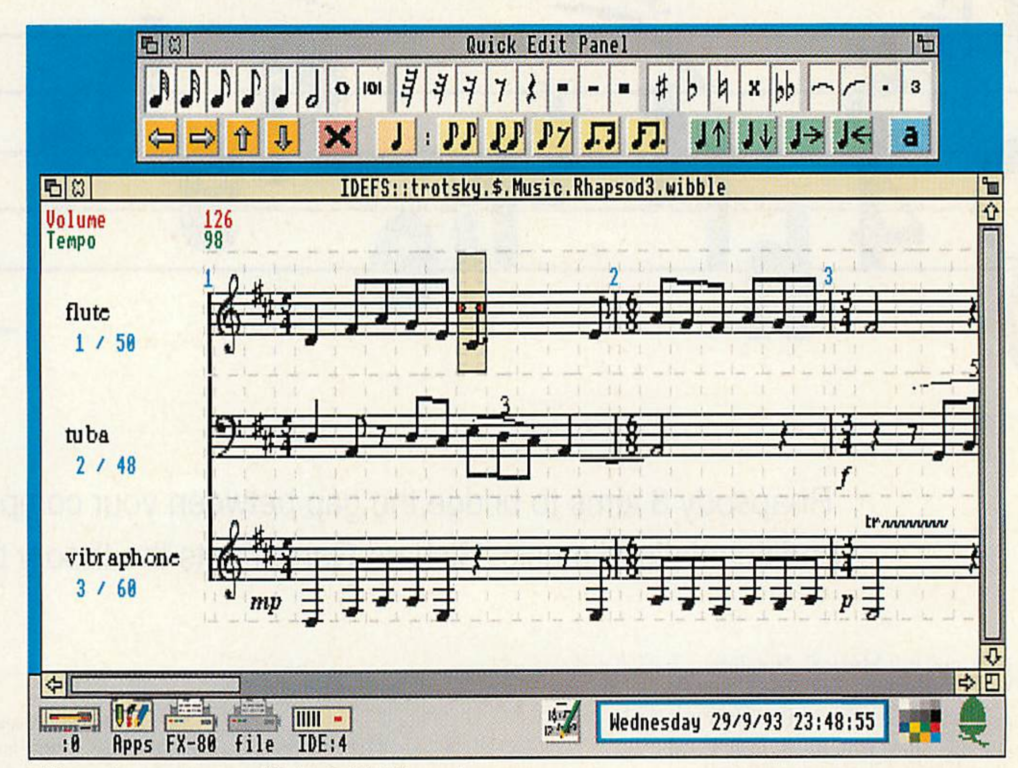
The heart of the beast: the new main panel and the subchoices. signatures, tempo, and so on

What's new?

The two most visual additions to this version of *Rhapsody* (apart from the control panel) are the guitar chord option and the new hairpins and phrase marks. The guitar chord option in *Rhapsody 3* opens a window from which you select chord boxes and insert them on to a blank stave.

The chords can be assigned to any sound channel and each one plays for a fixed duration of two beats. You can use any chord, as long as it occurs within the bottom five frets of standard guitar tuning. As well as writing your own chords, this window has three buttons that generate major, minor and dominant seventh chords for you. The new hairpins (crescendo and decrescendo) and phrase marks are now *Draw*-type objects with control points so that you can stretch and bend them around the notes of your choice. They don't affect the sound but look good on the printout.

The new version also comes with lots of new markings. For me, the most impressive is the 'tuplets': a sequence of note values that take up slightly more (or less) space than one would normally expect: nine notes played in the space of eight, two in the space of three and so on. Calculating these demands a lot of computation while the music is playing. It's a feat on the part of the author, that *Rhapsody* will do most tuplet groupings up to fifteen notes.



Editing a three-part score with the Quick Edit panel

printers; *Rhapsody* or Midi files; and to Midi or Archimedes internal sounds.

It can also save and load squashed *Rhapsody* files, compressing and de-compressing them as it goes. On screen, *Rhapsody 3* has two basic elements - the score window and the main panel.

Score window

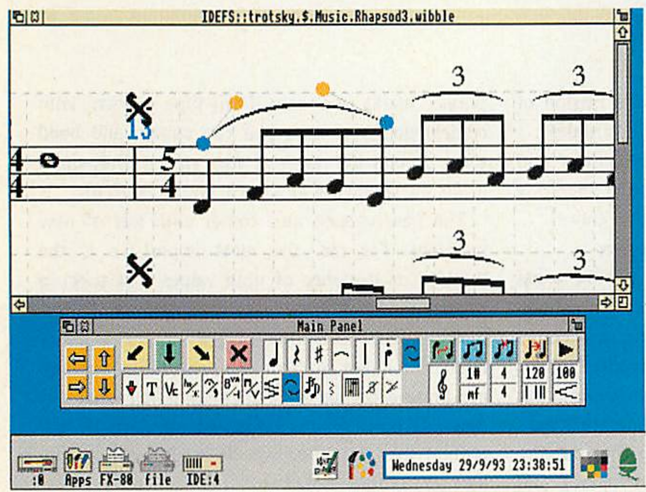
It will come as no surprise to learn that the score window is that area of screen which displays the score. Each score appears as a number of staves divided into slots by faint (optional) guide-lines. For navigation, there is a yellow cursor the height of a stave and the width of a slot which contains red pointers to indicate the current line.

Horizontal arrow keys move the cursor around the slots and vertical keys shift the red pointers up or down to adjacent notes in the current key.

From the score window, you can access a pop-up menu which controls macroscopic functions like file handling; block editing and transposition; adding and removing staves; Midi data capture; formatting, printing; playing scores and so on.

Main panel

The heart of this beast is its main panel, a long narrow window containing a double row of 3D buttons divided into action, selection and subchoice icons. The Action group is made up of four on-screen cursor keys; three insert buttons which place musical notation objects before, at or after the cursor position; a delete button; a button to toggle note stems up and down; two buttons to force and break the beams connecting adjacent notes; a button to alter slot width; and a video style play button. The selection and subchoice icons govern selection of all available objects.



A close up view of the new Draw-style phrase marks

How to start

When you open a new score in *Rhapsody 3*, you get a single stave containing a treble clef and a 4/4 time signature. All you have to do is select objects and place them in the score.

To choose a musical symbol, you first click on one of the sixteen selection icons. This reveals up to 15 subchoice objects in the lower middle section of the control panel. To select a symbol you simply click on one or, in the case of dotted notes, two of these icons. The objects are grouped into note and rest values from hemi-demi-semiquavers right up to breves; accidentals (sharps, flats and naturals); bar lines; repeat marks; ties; staves; key and time signatures; dynamics; tempo marks; and much more. If this vast array of symbols is all too much, you can also select common objects from an alternative Quick Edit panel.

Having chosen an object, you can place it in the score either at, or next to, the cursor by clicking the appropriate insert icon (or by dragging and dropping with the mouse) to any position you like.

To edit an item out, you either drag it out of the score window or you select it with the cursor and remove it with the delete icon. Because several musical symbols can co-exist on one line of a stave, you usually have to nominate a symbol in the main panel before you delete it. This way *Rhapsody* knows which one you're talking about.

If you have the technology, you can also enter note-values from Midi input devices using the capture function. This comes in three flavours: step time where the pitch of the note is set by Midi and its duration is set by the main panel; real time where you play along to metronome and Rhapsody does its best to transcribe your playing; and semi-real time which is like real time but quantizes the notes, matching their durations and start points to slots in the score.

Editing the score

Once you've got some notes into the score and maybe played them back once or twice you can start editing. As well as simple edit functions available from the main panel there are several block-edit functions available from the score window menu.

Many of these have counterparts in wordprocessing (block copy, move, clear and so on) but others a more specific to music and include transposing, shifting, re-tailing and accenting blocks of notes.

A nice feature of *Rhapsody 3* is the way it handles bar lines. When you put notes in from scratch, the program adds up their durations and inserts a bar line each time they exceed the number of beats in the current time signature.

Once bars have been set, these lines can only be edited manually but, as you make

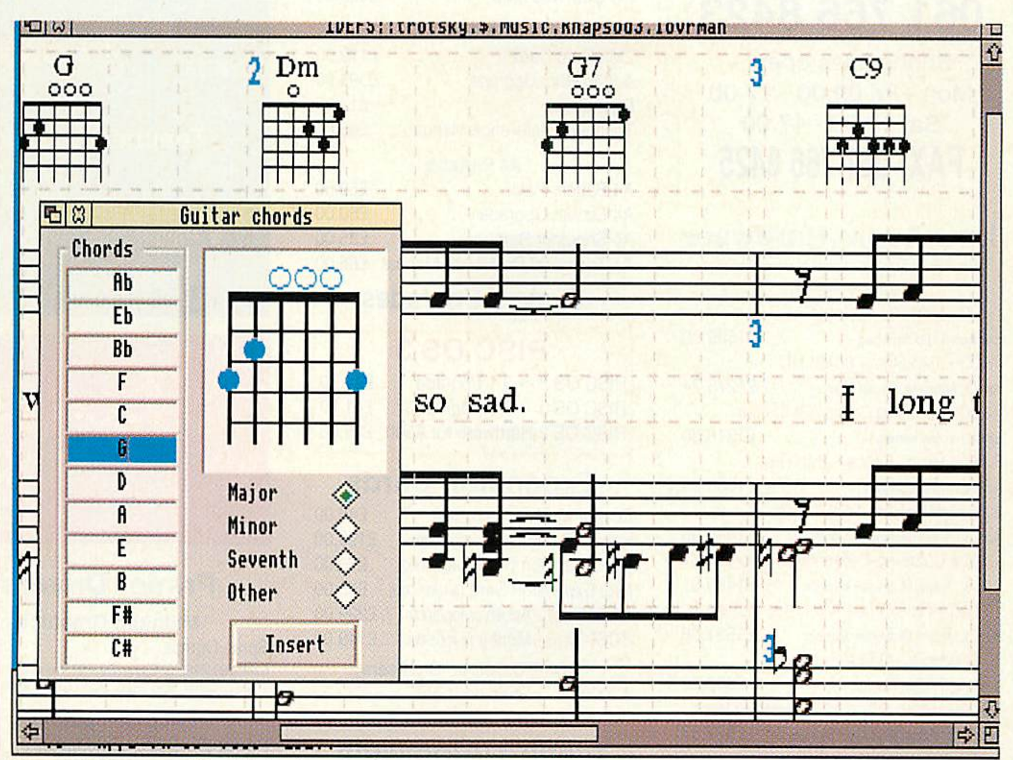
changes, a system of warning boxes comes into play. These tell you if a bar contains too many or too few notes and when notes are badly aligned. With complicated bars, you can generate erroneous messages but it's usually a lot more convenient than counting notes oneself. All or any of these warning boxes can be turned off.

Once you've got the basic notes and rests into the machine, there are many more symbols to play with. Some change the way that the score plays, while others just change its appearance.

Among those that affect the audio output are the repeat marks used to arrange the piece; the ties, dots and tuplet markings which alter the length of notes and rests; dynamics mark (piano, forte, fortissimo and so on) which alter the intensity of an individual stave; and effects like accents (staccato, spicato), glissando, tremolo and trills.

Those which print out but do not affect playback include phrase marks, hairpins (crescendo and decrescendo), pauses and text for song lyrics and directions.

Rhapsody scores can be displayed in five sizes ranging from tiny to huge and uses five types of stave. These are normal (five lines), small, percussion (one central line), sol-fa (no lines but includes bars and time signatures) and blank for text and guitar chords.



Rhapsody 3 – now with added guitar chords

Musical output

Before printing a score, *Rhapsody* requires that you format it. This is to say you tell the program what size you want to print it and which staves you want to print out. If you want, you can arrange a complete piece on screen and then create parts for individual players simply by telling the machine which staves to print. Very convenient.

If you want to include your score in a DTP document as a *Draw* file, you'll have to wait a few months for the next version of Score Draw. Current versions can't cope with all of the new features. The only other minor drawback we found is that on Arm2 machines *Rhapsody 3* sometimes slows down when things get complicated.

Conclusion

Rhapsody 3 does have an enormous range of features and is well laid out and robust. (It only crashed once, when asked asked for staccato demi-semiquaver septuplets – a fairly unreasonable request).

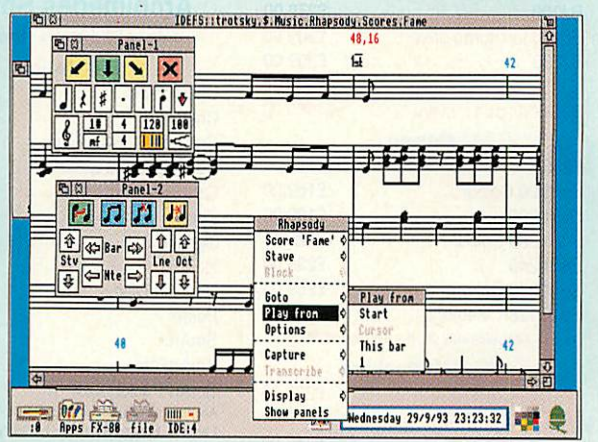
An absence of advanced features in *Rhapsody 2* was rather annoying, but after a week of playing with *Rhapsody 3,* there were no similar frustrations: it is both helpful and easy to use. A novice musician will probably find it fun trying things out to see how they sound. For the serious musician, *Rhapsody 3* has enough features to allow real composition.

To drag a popular epithet from the games pages, *Rhapsody 3* is addictive . . . and I never thought I'd say that about a score editor.

Rhapsody 3 vs Rhapsody 2

At first glance, the most obvious difference between *Rhapsody 2* and *Rhapsody 3* of this program is the new expanded main panel. Although version two had many of the features of version three, it was sometimes difficult to find the one you wanted by cycling through options on the two small control boxes.

This made selection rather slow and sometimes obscured the number of options available. The new selection/subchoice approach is much more accessible and although the new panel is larger it doesn't seem to get in the way any more than its predecessor.



Once you get into the program, the extended range of notation makes itself apparent. Some symbols, notably Da Capo, Coda and Fine were sad omissions in *Rhapsody 2* and they will be welcomed by most upgraders.

Others will appeal differently to different users. We were taken by the ability to write (and hear) weird tuplets but, no doubt, others will be thrilled by guitar chords or by more elegant phrase marks.

If you're happy with the features that Rhapsody 2 offers, then stick with it. But if – like most keen musicians – you want more squiggles with your dots, then the path is clear. Go for the upgrade.

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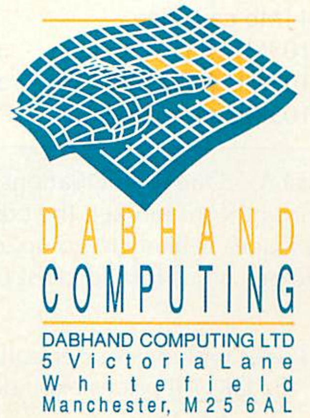
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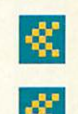
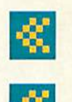
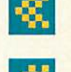
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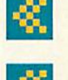


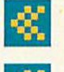
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240Mb	-	£259.00

SCSI drives - Internal

170Mb	-	£249.00
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For external system (case+cables), add £65.00 to the cost of drive.

SyQuest removable drives

44Mb 5.25" (SCSI)	-	£325.00
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P.O.A. - Due to fluctuations in the current RAM market, the cost of memory upgrades is likely to go up, or down! Please call us for the latest prices.

* Prices include courier collection/return in the UK. All prices exclude VAT (@ 17.5%). E&OE



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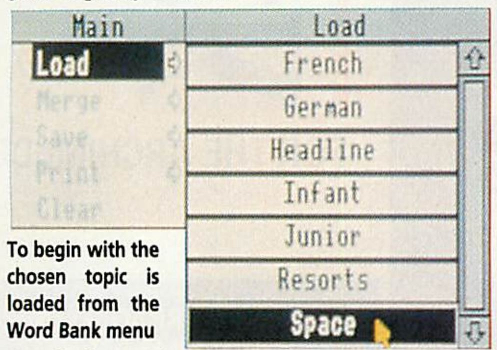
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A play on **words**

Graham Dean looks at how to improve your word power with Topologika's Word Bank

If you have ever wished that your pupils could type more quickly, or that your concept keyboard had more keys, then you will probably find *Word Bank* from Topologika a useful tool.

It's not an application which was on our school shopping list, but the guide which came with the application got us started and once my Year Five got hold of it, many other uses became apparent. The 20-page manual is very clear, but not as helpful as the single-page activity guide which gave us plenty of ideas.



To begin with the chosen topic is loaded from the Word Bank menu

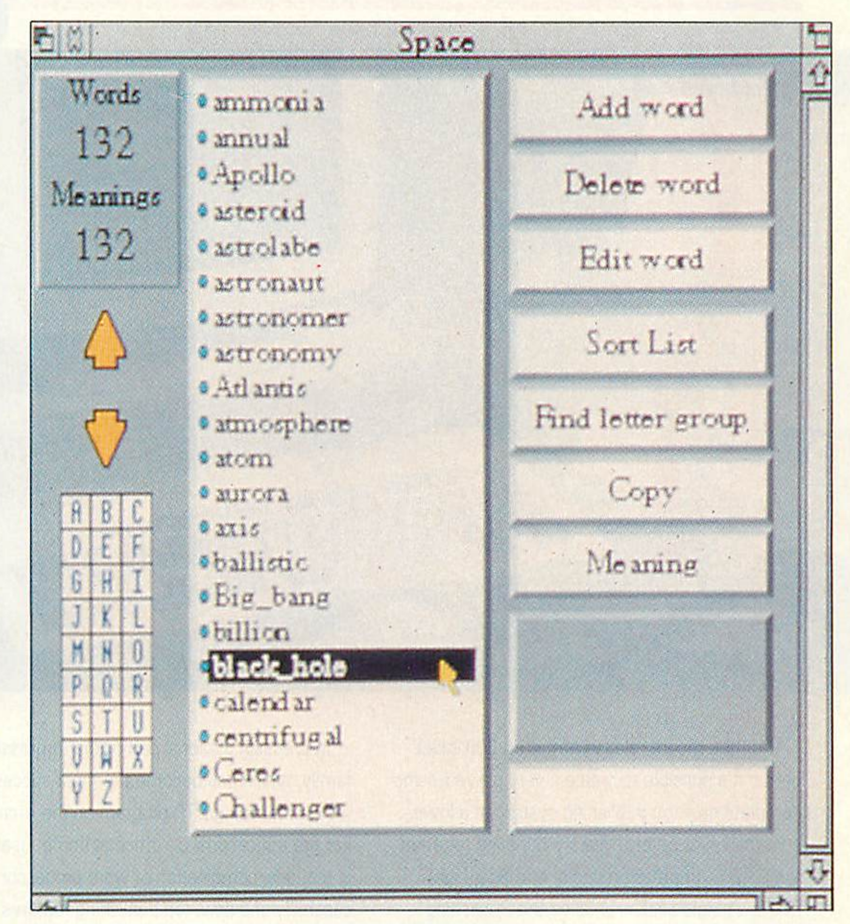
Topologika markets the package as a spelling aid. The main application provides facilities for entering words (up to 999), which can then be sorted, edited, deleted, or searched. It is also possible to write a line of explanation which can be attached to each word.

The menu allows lists to be saved, loaded, merged, and printed. The save option is particularly easy to use, as there is no need to have a directory window open in which to drag the icon – nor is the full pathname needed. Typing in the name you wish to give to your file saves the list in the appropriate directory as an *Edit* file.

But *Word Bank* can be much more than just a spelling aid. From the application window there is the facility to copy any selected word into another window, but the *Word Bank* window is too large to make this practical. However, *Tiny Word Bank*, which only takes up a sixth of the screen, can load lists written with the main application and copy them into another window.

The real strength of the twin applications is that they can be used to enter words into almost any other multi-tasking application which accepts text at a caret. Pupils can use it to put captions into *Draw* files, text into Acorn's *Advance,* data into databases such as *Pinpoint* and so on. Ironically the only application which couldn't accept *Word Bank* input was Topologika's *Imagine*.

There are a couple of minor niggles. The option to choose a different font would be nice – at present text is in Trinity. Also allowing the scroll arrows to jump through the word list in larger steps would speed up the search process, and more ready-made word lists would provide users with ideas on how to use the package to best advantage. Finally, as we all know proper nouns should start with capital letters: not always the case in *Word Bank.* Perhaps this is unduly pedantic, but education packages do need to set a good example.



The top example shows words stored under the topic of Space. The words with meanings attached are marked with blue circles.

By choosing the meaning option, the pupil can look up explanatory text as shown in the lower screenshot

Conclusion

Criticisms out of the way, *Word Bank* will quickly prove its worth in primary or special needs classrooms, or secondary foreign language departments. The price is fair, and it provides an ideal intermediate step for entering text, between concept and conventional keyboards.

Product details

Product: Word Bank
Supplier: Topologika
Tel: (0733) 244682
Price: £25 (includes site licence)



ACORN BUSINESS USER

I've been corresponding with Acorn and others in the hope of persuading them to pay more attention to business users. I hope you won't mind my saying so, but I wish *Acorn User* would do the same.

I appreciate that your audience is the existing community – if that's the right word – but the trouble is that the composition of that group seems to result in a mix of articles which, I think, discourage people like myself from taking Acorn systems seriously. I bought my system after I read about *Impression* and LaserDirect in *The Independent*; I am not sure that I would have so readily considered Acorn if I had read the same story in your paper.

This is not to decry *Acorn User*; as a magazine for specialist readers it does a fine job. Maybe, given the small size and the particular concerns of your audience, you can't give the magazine a more business-like appearance. Which is a pity.

P Robertson
Tewkesbury

You've answered you own question there: 'I appreciate that your audience is the existing community,' and to be totally frank, there aren't too many people out there using Acorns for business. So why is this?

The big problem with persuading the business community to accept any new standard is that old bugbear, PC-compatibility. People who don't know much about Acorn machines tend to ask: 'yes, but does it run *WordPerfect*?', which is hardly relevant considering the native Acorn packages are a lot better.

What we need is not so much increased PC compatibility, but increased file format compatibility. *Artworks* can load *Corel Draw!* files and this immediately increases its appeal to business users. Imagine a world where *Impression* could load and save *Quark* and *PageMaker* files; *Eureka* could edit *Lotus* files; *DataPower* could load *DBase* files. Surely that's the direction Acorn software houses should be taking to entice the business markets; an attitude that says: 'we can do it better, and you can still use the results on your PC.' Beat them at their own game, but not on their own turf.



Speed freaks rejoice: the A5000 looks the same, but it's now faster

ROBERT CLIFFORD

THE HARD SELL

In the October issue you printed a letter from J George who claims that software for Acorn machines is expensive. True, some of it is, but most is reasonably priced. But what about hard drives?

Am I the only person who thinks that the prices asked for hard drives is nothing short of extortionate? Is it really possible to justify £349 for an 80Mb drive? Even Apple doesn't get away any more with a premium like this in its niche market. Obviously prices are far more sensible in the PC world – a 100Mb drive costs about £90.

Perhaps I'm just a miserly old sod, or maybe I'm the only person with an A3010? Or is there anyone else out there who is reluctant to pay out almost as much for a hard drive as the cost of the machine itself?

D M Francis
Cheshire

It's a common complaint, this. This is too expensive, I could get it cheaper for a PC, why don't they drop their prices.

Well, being in a niche market does mean prices are higher. It's to do with comparative lack of demand, and the fact that hardware needs to be tailored to specific, non-standard specifications.

But, surely, this is outweighed by the reasons why you bought an Acorn machine in the first place? It's the same machine that the kids are using at school. It has a far better desktop than any of the rivals (yes, and that's including the Mac). It's faster for less money. It is a dream to program. It isn't stuck in the rut of only being good at one thing: DTP (the Mac) and business (PCs).

It's the future, and the future is never cheap. Do you regret your decision? Of course not.

A NEED FOR SPEED

When, oh when, is Acorn going to revamp the top end of its range? The A540 is no more, and the A5000 simply isn't fast enough. We want Arm7s...

J Montague
Stockport

We could point you towards last month's news pages, and the launch of the new 33MHz A5000. But my guess is that this will still not satisfy you. Next year, perhaps your wait will be rewarded...

DISCY BUSINESS

I love your new cover disc... I played the *Xenon* demo from end to end.

F Jarman
Telford

I do hope that you are going to have more usable applications on your future cover discs, rather than just games demos, which, I have to say, don't interest me at all.

A Horwood
Cheltenham

Ah, variety is the spice of life, as they say! Another thing they always say is that you cannot please all the people all the time. Not true. Luckily we can keep both of you happy.

Yes, *Acorn User* will continue to have the best demos around, but we also intend to provide you with some extremely useful complete applications.

Just have a look at this month's disc: you've got a complete OCR package (which would cost you around £50 if you had to go out and buy the thing), an excellent games demo, an address book with more options and features than your average filofax, two OmniDesk utilities designed with the express aim of making life easier for all you programmers, and all the usual regulars like *INFO.

And it can only get better. Watch this space.

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(Gr)aphics, (Ga)me, (Ed)ucational, (Mi)scellaneous, (Wo)rdprocessor, (Sp)readsheet, (Da)tabase, (In)tegrated Package, (La)nguage

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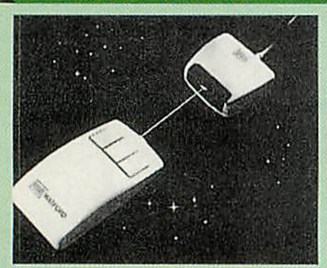


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- Low Friction Teflon Footpads
- Power – by two AAA size batteries (not included)
- Automatic Standby Mode after 5 minutes inactive
- Auto Power Shut-Down after 20 minutes inactive

Price: £29

Archi A4 Scanner



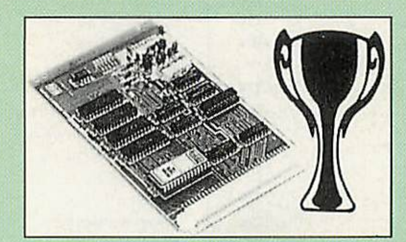
The 216mm scanning width can cope with both desktop scanning of single sheets, photographs, diagrams, etc with its fast ten page automatic document feeder, but it can also detach from the feeder to become a convenient hand-held full page scanner for larger documents or pictures. Scanned image control can be freely adjusted in increments of 10 dots per inch from 100 up to 400 dpi resolution with 64 levels of grey scaling. A built in shading controller and manual brightness control achieve optimum clarity. Unlike some scanners, which use a red light source, the Watford scanner uses a yellow/green source which vastly improves the light/dark contrasts, thus eliminating the effect where any red-based colours are faded down to white and so do not show up in the scanned image.

Archi A4 Scanner	£199
Sheet Feeder for Above	£75
Scanner + Sheet Feeder	£269

Spares for Archimedes

Archi Keyboard	£29	Cased Keyboard	£120
Controller VIDC	£39	A3000 Keyboard	£45
I/O Controller	£39	ARM 2 CPU	£39
A400 Floppy Drive	£59	Fan Filter	£6
A3000 Floppy Drive	£59	Keystrip	£5
A300/400 PSU	£89	MEMC	£29
A3000 PSU	£49		

Archi Real-Time Digitiser



Now supplied with NEW RISC OSVersion Software

Watford's Archimedes Video Digitiser is the most sophisticated digitiser ever designed for a micro. It provides a fast and flexible means of capturing images from a video camera or recorder for display and manipulation on the Archimedes range of Micros. Off-air televisions may also be digitised via a video recorder or TV tuner. Please write for further details.

Price £75

A Set of Colour Filters for colour image grabbing using a video camera £16

Archi to BBC Serial Link Mk 2

Using this simple data link, it is possible to solve all your BBC to Archimedes data transfer problems. The kit is supplied with a disk, and the necessary cable to connect the two computers.
- RISC OS 2 Version **£15** • RISC OS 3 Version **£16**

(P.S. For A3000 Serial Upgrade **(£19)** required)

A3000 Accessories

- 3.5" External Drive **£95** • Monitor Stand **£15**
- Technical Manual **£32** • Serial Upgrade **£19**
- A3000 Dust Cover **£5** • Micro + Monitor cover **£9**
- Acorn Carrying Case for A3000 **£10**
- A3000 User Port/Midi Upgrade Card **£44**
- A3000 User/Analogue/IIC I/O Card **£38**
- A3000 External Podule Case **£15**

A3000 I/O Card (User, Analogue & IIC)

This NEW versatile I/O Card from Watford, fits inside the A3000 and includes an Analogue to Digital Converter, a User Port, and an InterIC (IIC) connector.

The card allows many of the peripherals developed for the BBC to be used with the Archimedes A3000. The ADC and User Port have the same pin out and connectors as the BBC computers.

Extensive RISC OS software is supplied to provide BBC OSBYTE calls for support of the ADC and User Ports, including the BASIC keyword ADVAL. The software provides extended RISC OS support for separate interrupts from both the ADC and User Ports, permitting easy interrupt driven operation.

The card is provided with all the software in ROM and is automatically loaded when the machine is turned on.

Peripherals connected to the ports can obtain up to 500mA of power at +5V. A fuse is fitted to the card to protect the A3000 from damage arising from accidental short circuit of the power output.

Features
- An 8 bit User Port with a standard 20 way IDC connector, compatible with the User Port on the BBC computers and the Archimedes I/O Podule.
- A 10 bit Analogue to Digital Converter with a standard 15 way D-type connector, compatible with the ADC on the BBC range of computers and the Archimedes I/O Podule.
- An InterIC (IIC) Port with a 5 pin DIN socket to connect the A3000 to external IIC devices **£38**

Cortian CKAI Interface

Eliminates need to have a User Port in A3000/305/310/400/540 when using Concept Keyboard **£28**

Concept Keyboards

- A4 Standard Pack **£89** • Primary Pack **£95**
- A3 Standard Pack **£94** • Primary Pack **£99**
- Designer Pack A4 **£104** • A3 D Pack **£104**
- Universal 2010 Keyboard A3 **£107**
- Universal 2010 Keyboard A4 **£104**



Now everyone can afford an Archimedes micro, monitor, printer, Hard Drives, etc with Watford Electronics at 12, 24 & 36 months credit facility. Please telephone 0582 74 55 55 for details

Archimedes External Disc Drive Interface

With this interface it is possible to connect almost any 5.25"/3.5" disc drive with its own power supply to the Archimedes. Up to 4 disc drives can be connected. Fully Buffered Board. NO SOLDERING is involved. Supplied complete with necessary lead. **Price £21**

Back Plate Extension
- A300/400 **£15**; • A3000 **£14**

ARM 3 Turbo Card Mk II

Simply The Best



Here it is at last – the all new Mark 2 version of Watford's highly acclaimed ARM 3 processor board for the Archimedes and now also the A3000 series computers. Using the latest surface mout technology on a high quality four layer circuit board we have reduced the overall size to a mere 53mm x 45mm, and the cost to only £145. Mk II upgrade will increase the speed of your micro by a factor of 3 to 6.
Any competent A300 or A400/1 series micro owner can fit the upgrade himself, as we provide full fitting instructions and a special ARM chip extraction tool. However, for A3000 micros and those not wishing to perform the upgrade themselves, we will collect, upgrade and return your micro by courier service, at an additional cost of £24.
(A300 and old A440 series owners please note – you will need to upgrade to MEMC1A for ARM3 to work.)

RRP £249

Special Offer £125

Network Accessories/Software

BBC B Econet Kit	£42
Master Econet Module	£40
Archimedes Econet Module	£40
A3020/4000 Econet Module	£49
Acorn A4 Econet Module	£50
Archimedes Ethernet Card	£139
A3020/4000 Ethernet Card	£179
AUN/Level 4 Fileserver	£379
Econet Starter Kit	£137
100m Econet Cable	£99
Econet Socket Box	£7.50

(PS. Full range of Network Accessories /Software/Site Licences available. Telephone for details.)

Leasing finance at very attractive rates now available to Businesses (subject to status), Schools, Colleges, Universities, Government Depts. and Local Councils.

Continued →→→→

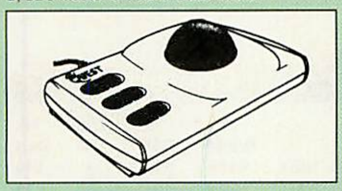
Archi Mk II Hand Scanner

Watford's Mk II hand scanner has a maximum resolution of 400dpi. The scanning width is 4". The sophisticated software is supplied in a 64K ROM, located on a standard single width expansion podule. As you scan a page, the image appears in the scanning window on the screen, scrolling up in real time. Other facilities include cropping and scaling to any size including stretching and squashing in X and Y directions separately. Colour tinting, X and Y flip, edge detection which turns solid objects into outlines. Images can be printed on any printer supported by RISC OS. On-screen help is provided via the RISC OS interactive help facility. (Please write in for full technical details).

AHS-4 Archi 300/400 Version	**£89**
AHS-3 Archi A3000 Version	**£99**

Quest – Tracer ball

An attractively finished, extremely reliable mouse replacement, input device. Requires very little desk space. Connects directly to your BBC B, BBC Master or Archimedes Micro.



Antistatic Lockable Disc Storage Units

- **M35** – holds up to 50 5.25" discs **£4.95**
- **M85** – holds up to 95 5.25" discs **£6.95**
- **M25*** – holds up to 25 3.5" discs **£4.95**
- **M50** •– holds up to 50 3.5" discs **£6.50**
- **M100** – holds 100 3.5" discs **£6.99**

**Not lockable*

Disc Plonker Rack



When using ones micro, there is a tendancy to have more than one disc on the desk. This exposes them to the hazards of fingerprints, scratches, dust, coffee and an untidy desk. Why not protect your valuable data from all these hazards with the help of our extremely hardy and low cost DISC PLONKER RACK. Holds up to eight 5.25" discs. **£2**

3M – Diskettes

Lifetime warranty on 3M Discs

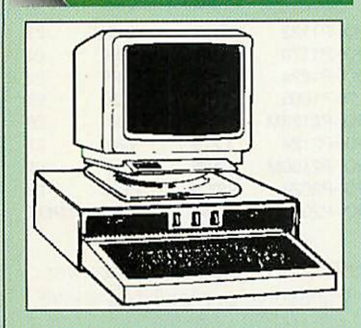
- *10 x 5.25" S/S D/D 40T (744)* **£5**
- *10 x 5.25" D/S D/D 40T (745)* **£5**
- *10 x 5.25" S/S D/D 80 Track (746)* **£6**
- *10 x 5.25" D/S D/D 80 Track (747)* **£7**
- *10 x 5.25" 1.6M D/S H/D for IBM* **£8**
- *10 x 3.5" S/S D/D 40/80 Track* **£6**
- *10 x 3.5"D/S D/D 40/80 Track* **£6**
- *10 x 3.5" D/S H/Density* **£10**

Top Quality Diskettes

Watford's lifetime guaranteed discs are supplied complete with self stick lables & plastic libary case.

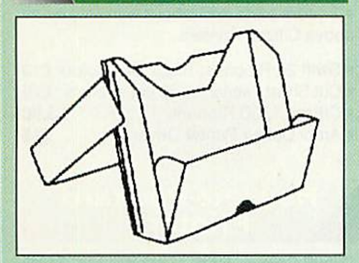
- *10 x **M3** 3.5" D/S D/D 80 Track* **£6**
- *10 x **M9** 3.5" D/S High Density* **£10**
- *10 x **M4** 5.25" S/S D/D 40 Track* **£5**
- *10 x **M5** 5.25" D/S D/D 40 Track* **£5**
- *10 x **M7** 5.25" D/S D/D 80 Track* **£6**
- *10 x **M8** 5.25" D/S H/D Hi-Density* **£9**

Disk Drives in Monitor Stand



- **CDPM 800S** – Twin 5.25", 800K Double sided 40/80 track switchable disc drives mounted in an attractively finished Beige colour plinth for the BBC B & Master 128K micros. Supplied complete with integral power supply, cables and Utilities disc.The mains switch with neon On/Off light indicator, and the two 40/80 track switches are mounted on the front panel for ease of use. **£139**
- **DP35 800** – Same as above except one disc drive is a 5.25" and the other is 3.5". **£135**

Plastic Library Cases



DLC1	– holds 5 x 3.5" Discs	**£1.50**
DLC2	– holds 10 x 3.5" Discs	**£1.90**
DLC3	– holds 5 x 5.25" Discs	**£1.60**
DLC4	– holds10 x 5.25" Discs	**£2.00**

Disc Albums

Attractively finished in leather-look PVC Vinyl

DW1	– holds 6 x 3.5" Discs	**£2.50**
DW2	– holds 6 x 5.25" Discs	**£3.00**
DW3	– holds 20 x 5.25" Discs	**£3.50**
DW4	– holds 40 x 3.5" or 5.25" Discs	**£4.50**

Cleaning Kits & Aerosols

- 5.25" Disc Cleaning Kit **£4**
- 3.5" Disc Cleaning Kit **£4**
- PC Cleaning Kit **£7**
- Professional PC Cleaning Kit **£12**
- Aerosol Dust Spray Can **£3**
- Servisol Foam Cleaner Can **£3**
- Antistatic Aerosol Spray **£3**

Watford's Mk II 1772

Single/Double Density DFS

Many of our customers have wanted to use our superior DDFS and Acorn ADFS together. Now our Mk II DDFS Board with its 1772 Disc Controller has been adapted to allow the use of Acorn ADFS as well. It also has all the commands of the Acorn's 1772 DFS, plus many more added features.

- Complete Kit — **Special Price £39**
- DDFS Manual — (No VAT) **£6.95**

Assorted ROMS BBC B/Master

ACORN ADFS	**£25**
ACORN BASIC 2 plus User Guide	**£22**
ACORN DNFS	**£17**
Acorn OS B+	**£25**
Acorn OS 1.2	**£14**
Beebmon	**£22**
Dump Out 3	**£25**
Graphics Extension Rom	
GXR-B	**£21**
GXR-B+	**£22**
Logotron LOGO	**£43**
MASTER OS ROM	**£38**
Master ULA (47)	**£15**
Master ULA (60)	**£10**
Numerator – Archi	**£69**
Numerator – BBC	**£39**
Pendown ROM	**£32**
SERIAL ULA	**£13**
TED	**£15**
Video ULA	**£14**
1Mb OS ROM	**£39**
View 3.0 **£45** Viewsheet	**£36**
Viewstore **£36** Viewspell 80T	**£25**
InterBase **£49** InterChart	**£25**
InterSheet **£37** InterWord	**£36**
Mega-3 ROM **£76** Spell Master	**£42**
Wordwise Plus	**£38#**

Price includes a FREE Wordaid Rom View

Printer Driver ROM	**£29**
Word-Aid	**£24**

BBC Micro Products

Quest Mouse III & Quest Paint	£39
Quest Mouse III, Quest paint, AMX Stop Press & Pagefont	£59
Quest Mouse III only	£25
Quest Paint only	£23
Quest Font Disc (22 fonts)	£15
Red Mouse Mat	£3
Green Mouse Mat	£3
Blue Mouse Mat	£3
Conquest-Quest Extensions	£24
Quest Colour Dump Disc for Integrex 132	£18
AMX Mouse & Superart	£39
AMX Mouse only	£25
AMX Superart	£25
AMX Stop Press DTP	£18
Page Fonts (20 fonts)	£13
Wappng Editor DTP	£39
Wapping Editor & Quest Mouse	£59
Wapping Art Disc (Clip Art)	£15
Wapping Font Disc 1	£12
Wapping Disc 2	£13
32K Shadow Ram Expansion Card	
32K Memory Expansion for the BBC Micro	£45
BBC Master Twin Rom Cartridge	£9
BBC Master Quad Rom Cartridge	£14
32K ROM/RAM Card for BBC/B	£39
64K ROM/RAM Card for BBC/B	£52
128K ROM/RAM Card for BBC/B	£83
16K Static Ram for ROM/RAM	£8
16K Dynamic Ram for ROM/RAM	£13
Battery Backup for ROM/RAM	£3
Sideways ZIF External ROM Socket	£18
Solderless Rom Board	£32
Solderless Rom Board Utility Disc	£8
Data Duck – Plug 2 Disc Drives into BBC	£14
Power Duck – Power 2 Drives from BBC	£8

Acorn & Watford DFSs

- Watford DFS Kit complete **£42.00**
- DFS Manual (comprehensive) **£6.95**
- Acorn DNFS ROM **£17.00**
- Acorn ADFS ROM only **£25.00**
- Acorn 1772 DFS ROM Kit **£42.00**
- Acorn DFS Kit complete **£42.00**

TEX EPROM ERASERS

TEX Eraser operates following the manufacturers specifications to give maximum possible working life to EPROMs by not erasing too fast. Erases up to 10 EPROMs. Has an automatic safety cut-off to switch off UV lamp when opened. **£34**

- Spare UV Lamp **£12**

Microvitec Monitors

- **1451** – Medium Resoluation **#£199**
- **Cub3000** Medium Res for A3000 **#£195**
- Dust Cover for Microsvitecs **£5.50**
- **Touchtec 501 Touch Screen** **£239**
- **Touchtec 3000** (For RiscOs 2 only) **£POA**
- CubScan 1440 14" **£389**
- CubScan 1450 15" FST **£POA**

#3 years parts & labour warranty

MultiScan Monitors

Eizo T240i	£483	Pan TX1713MAB	£616
Eizo F340i-W	£625	Phil 4CM4270	£289
Eizo F550i-W	£899	Phil 7CM3279	£249
Phil 7CM5279	£269	Taxan 787	£229
NEC 2A-N	£274	Taxan 787LR	£239
NEC 3FG	£360	Taxan 789LR	£289
NEC 3FGe	£449	Taxan 795-PC	£465
NEC 4FGe	£479	Taxan 875+LR	£737
NEC 5FG	£899	Panasonic C1381	£199
NEC 5FGe	£789		

Panasonic monitors carry 2 years on-site maintenance warranty.

Aries Monitors

Its multiscan circuitry provides automatic adjustment for frequencies between 31 and 56KHz horizontal, and 43 and 70KHz vertical. Its 0.28mm dot pitch high resolution tube provides super sharp text graphics, while a high speed (70/72 Hz) refresh rate provides a flicker-free display easing the eye strain. The VIDC Adaptor supplied with the monitor allows high resolution operation in all screen modes. **£299**

- Aries Alphascan 17" Plus **£585**
- Aries 6000 15" Flat Screen, 0.28mm non-glare 1024 x 768 non-interlaced (70Hz) Microprocessor controlled **£395**
- Aries 7000 17" Flat Screen, 0.28mm non-glare. Maximum resolution 1280 x 1024 non-interlaced. Microprocessor controlled **£625**

Philips Monitors

- **BM7502** 12" Hi-res Green **£88**
- **CM8833ii** 14" med. res Colour. Ideal for BBC B; Master & Archimedes **£192**
- Dust Cover for Philips Monitors **£6**
- Spare Monitor Leads (various) **£7**

Credit Card Hotline 0582 745555

Continued 

Pace External Modems

All Pace modems are BABT Approved and include a 5-year Parts & Labour Warranty.

- Linnet Plus – Intelligent, V21/23 Auto Dial/Answer, Hayes Compatible **£89**
- Linnet 24 – Intelligent, V21/23, V22, V22bis, Auto Dial/Answer, Hayes Compatible **£135**
- Linnet Quad – Intelligent, V21/23, V22, V22bis, V42, MNP 4&5 Auto, Dial/Answer, Hayes Compatible **£159**
- Linnet 32 – V32, V22bis, V42bis, V42, MNP 4&5 **£239**
- Linnet 32+ – V32bis, V32, V22bis, V22, V32, V21, V42bis, V42, MNP 4&5 **£285**
- Ultralink Quad – V22bis, V22, V21, V23, V42bis, V42, MNP 4&5 Upgradable to Ultralink 32 Plus Spec. **£195**
- Ultralink 32+ – Intelligent, V32bis, V32, V22bis, V22, V21, V23, V42bis, V42, MNP 4&5 wire leased line with P.S.T.N. dial backup and auto restore **£389**

Archi Comm Software

- Hearsay 2 **£68**
- Arc Comm 2 **£45**
- RS-232 Cable for above modems **£9**

Integrex InkJet Printers

- Paper Roll for Integrex 132 **£6.50**
- BBC Screen Dump Software **£10**
- Colour Cartridge **£23**
- Black Cartridge **£14**
- 100 A4 OHP transparencies **£55**
- Colour Jet 2000 **£599**
- Betajet Ink Jet Printer **£185**
- Betajet Cut Sheet Feeder **£43**
- Integrex Colourjet Series 2 **£335**
- Auto Sheet Feeder for Series 2 **£45**

Printer Leads

- BBC Centronics 4' **£5;** 6' **£6**
- Archi Parallel 2m **£5;** 5m **£9;** 10m **£13**
- PC Parallel 2m **£5;** 5m **£9;** 10m **£13**
- 25 pin D Male/Male 2m **£5;** 5m **£10**
- Centronics Double Ended 4' **£5;** 6' **£6** 5m**£10;** 10m **£14**
- RS232 Leads Various **£POA**

Star Printers

	Printer	CSF	Ribbon
LC15	£186	£135	£5
LC20	£102	£60	£4
LC100C	£117	£65	£9
LC24-15	£245	£135	£5
LC24-100	£140	£69	£5
LC24-20 Mk2	£175	£65	£5
LC24-200C	£205	£65	£12
LC200 C	£151	£65	£12
Star Jet SJ48	£169	£43	£16
SJ144C	£434	–	–
XB24-200C	£324	£80	£12
XB24-250C	£389#	£139	£12
ZA-200C	£260	£89	£12
ZA-250C	£324#	£139	£12

Includes 12 months on-site warranty

- Black Ribbons for Colour Printers **£5**
- Serial 8K I'face LC10/15/24/200 **£52**
- 32K Buffer LC/XB24-10; 15; 200 **£52**
- Star/Archi Colour Printer Driver **£15**

NEC Printers

	Printer	CSF	Ribbon
P22Q	£181	£59	£6
P32	£235	£59	£6
P62	£339	£79	£8
P72	£395	£115	£8
P90	£577	£115	£8

- Jetmate J400 **£169;** • Jetmate J800 **£249**
- Black Ribbons P20; P32 **£6**
- Ribbons P60/70/P90 Black £8; Colr **£14**
- P60/70 Colour Option Kit **£59**
- CSF for P20 **£59;** P60 **£89;** P70 **£89**

Laser Printers

All Laser Printers (excluding HP Lasers) include 12 months on-site maintenance

Brother HL4-PS Postscript	4ppm	£965
Brother HL6 – NEW –	6ppm	£427
Brother HL10-PS	10ppm	£1265
Brother HL10-DV	10ppm	£1016
Brother HL10-DPS	10ppm	£1435
Canon LBP4 LITE	4ppm	£478
Canon LBP4 + 1.5M RAM	4ppm	£639
Canon LBP-8 Plus IIR	8ppm	£1420
Canon LBP-8 IV 600DPI	8ppm	£932
Epson EPL-4300	4ppm	£520
Epson EPL-5000	6ppm	£439
Epson EPL-5200 – NEW –	6ppm	£525
Epson EPL-7500 PS	6ppm	£1135
Fujitsu VM600	6ppm	£539
HP Laserjet 4 ML	4ppm	£757
HP Laserjet 4	8ppm	£1048
HP Laserjet 4L – NEW –	4ppm	£459
HP Laserjet 4M PS	8ppm	£1369
HP Laserjet 4Si	16ppm	£2199
HP Laserjet 4Si MX 1200 DPI	16ppm	£3325
NEC Silentwriter S62P #PS	6ppm	£989
NEC Silentwriter S102	6ppm	£893
NEC Silentwriter2 290	8ppm	£1125
NEC Silentwriter 290P PS	8ppm	£1469
OKI OL400E	4ppm	£399
OKI OL410		£589
Panasonic KX-P4410	5ppm*	£445
Panasonic KX-P4430	5ppm*	£579
Panasonic KX-P4451 DB	11ppm*	£839
Panasonic KX-P4455 PS	11ppm*	£1249
Star LP-4 Post Script	4ppm	£759
Star LS-5	5ppm	£449
Star LS-5 EX (RISC Based)	5ppm	£548
Star LS-5 TT True Type + Mac	5ppm	£739
Star LP-8 III Postscript	8ppm	£1125

* 2 years on-site warranty

- HP Laserjet 4L 3 years on-site **£100**
- HP Laserjet 4Si 3 years on-site **£505**
- HP Laserjet 4/4M 3 years on-site **£170**

Laser Toners

Canon 2, 3 & 4	£52	HP4/4M	£72
KX-P4420/50i/55	£19	EPL 8100	£117
Canon LBP8-IV	£75	HP Laserjet 4L	£55
KX-P4420/30	£25	Qume Crystal (3)	£84
Canon 8/Star LP8	£59	OKI OL400/800	£18
NEC SWriter	£84	Star LP4	£52
Epson GQ	£12	OKI OL400e	£17
HPII/D, III/D	£58	Star LS5	£69
EPL 40/41/4300	£55	VM800 8K pages	£109
HP IIP, IIIP	£48	EPL5000/VM600	£89
EPL 71/7500	£117		

Laser RAM Upgrades

Type	1M	2M	4M
IIP; IIIP	£49	£80	£132
II & IID	£60	£96	£142
LJ4/4M	£69	£75	£1598M/£279
EPL4100	–	£120	– 512K/£52
KX4420/50i	£59	£89	£149
NEC S62/S102	£99	£180	–
Star LBP	£139	£275	–
Laserjet 4L	£75	–	–

Jetpage Postscript Cartridge

- HP IIP/IIIP **£225** • IID & III **£227**

Various Add-Ons

- Laserjet Appletalk Interface **£135**
- HP Adobe Postscript + Cartridge **£359**
- Pacific Page Postscript **£259**
- HP Premier Font Collection **£28**
- Laserjet Various Font C'tridges *from* **£45**
- HP Postscript Module for LJ4 **£270**
- Laserjet 4 Powered envelope feeder **£199**
- Jetdirect Ethernet Card for Laserjet IIISi/4/4Si **£359**
- 500 Sheet paper cassette (3rd Bin) **£205**
- HPIIP/IIP Lower Cassette Tray **£115**
- Canon LBP-4 Lower Cassette Tray **£96**
- Ozone Filter P4420 **£9** • P4450/55 **£20**

Panasonic Printers

	Printer	CSF	Ribbon
KX-P1123	£124	£49	£7
KX-P1170	£98	£59	£6
KX-P1624	£264	£126	£8
KX-P1695	£267	£126	£6
KX-P2123M	£144	£69	£8
KX-P2124	£215	£89	£7
KX-P2180M	£126	£69	£7
KX-P2624	£272#	£126	£8
KX-P2023	£158	£155	£POA

FREE – Printer lead with every Panasonic printer listed above

Includes 12 months on-site warranty

- Dustcover for 80 column printer **£6**
- Serial Interface for above Printers **£46**
- Black Ribbons for P1081, 1180, 1124 **£7**
- Brown, Blue or Red Ribbons for KX-P1081/1592/1595/1695 **£9 each**
- 32K Buffer for above Printers **£16**

Colour Kit for KX-P2180; KX-P2123 and KX-P2124 **£37**

Citizen Printers

120D+	£94	Swift 200	£178
PN-48	£179	Swift 240	£200
Swift 90	£132	Swift 240C	£212
Swift 90C	£198		

2 years parts and labour warranty on all above Citizen Printers.

- Swift 24 Ribbons; Black **£4;** Colour **£13**
- Cut Sheet Feeder for 80 col. printers **£75**
- Citizen 120D Ribbons **£3.50**
- Archi Colour Printer Driver **£15**

Hewlett-Packard Printers

DJ500 Colour	£239	DeskJet 1200C	£1040
DeskJet 510	£199	Quiet Jet Plus	£299
DJ550 Colour	£399	DJ Portable	£175

* Includes 12 months on-site warranty

3 years on-site maintenance available as follows:

DeskJet & DeskWriter mono **£55**
DeskJet & DeskWriter colour **£65**

- PaintJet Cartridge Black **£17;** Colour **£27**
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22706B – Prestige, Elite, Line Draw **£55**
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22707P – Proprint Emulation Cartridges **£57**

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- 630S 50 Transparencies A4 **£40**
- 630Y 200 Cut Sheets 8.5 x 11 **£14**
- 631Y 200 Cut Sheets A4 **£18**

Epson Printers

	Printer	CSF	Ribbon
FX870	£265	£39	£4
FX1170	£335	£69	£6
LQ100	£122	–	£4
LQ570+	£204	£39	£4
LQ870	£359	£47	£6
LQ1060	£585	£155	£6
LQ1070	£310	£69	£6
LQ1170	£445	£69	£6
LQ2550	£669	£360	£6
LX100	£115	–	£4
LX400	£92	£69	£4
LX850+	£135	£69	£4
LX1050	£204	£125	£6
SQ870	£419	£170	£23
SQ1170	£560	£155	£23
SQ2550	£669	–	£23
Stylus 800	£199	–	£10
Stylus 1000	£355	–	£10

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- FX/LQ1050 Tractor Feed **£85**
- LQ2500/2550 Tractor Feed **£90**
- Dust Covers for 80 col. printers **£6**
- Stylus 800 Transparencies (50) **£35**

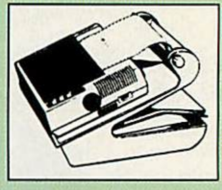
Canon Bubblejet Printers

	Printer	CSF	2nd Bin	Ink Cart
BJ10SX	£165	£43	–	£16
BJ200	£244	–	–	£16
BJ230	£280	–	–	£16
BJ300*	£305	£88	£88	£12
BJ330*	£369	£92	£79	£12
BJC800C	£1219	–	–	£16

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• 2 to 1	£12	£13
• 3 to 1	£15	£17
• 4 to 1	£24	£26

If you've ever had to type loads of printed copy into a word processor you'll understand the attraction of teaching your computer to read. The name given to this process is Optical Character Recognition (OCR), and since our overview of the state of OCR back in May, it's become a hot subject in the Acorn world.

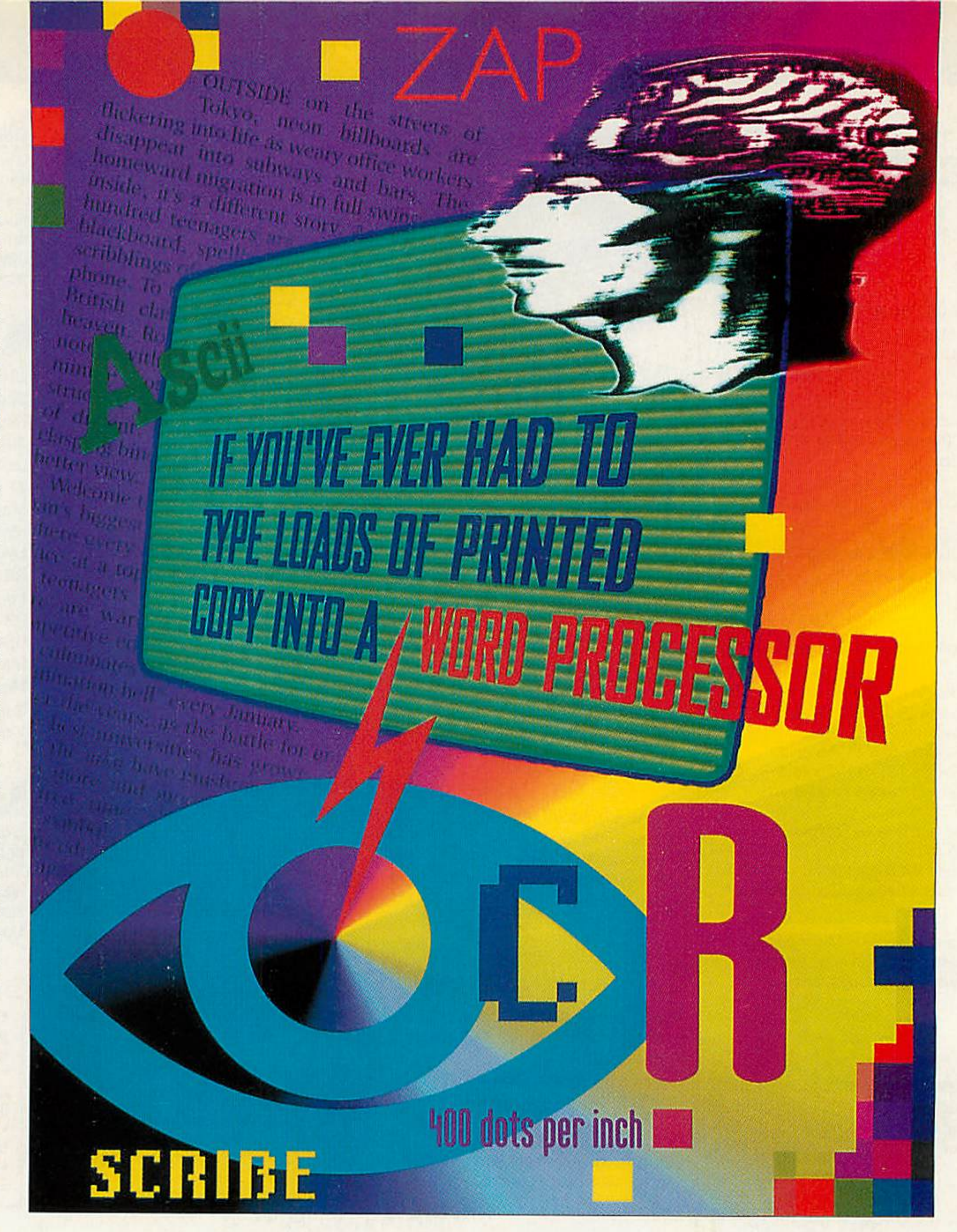
Now you can transcribe documents yourself with *Scribe*, *Acorn User*'s complete, trainable OCR package.

What is Scribe?

At its simplest, *Scribe* converts printed text in the form of scanned sprites into Ascii text files. It copes with any size of letter and recognises the first 96 printable Ascii characters. All you need is a scanner that produces monochrome sprites.

The heart of any OCR program is the algorithm for recognising characters. Most use some form of statistical comparison but *Scribe* is different: it uses neural networks. These mathematical models exhibit similar properties to the brain, and are good at storing and recognising patterns, even when incomplete or distorted.

The networks can be created and stored by *Scribe* in special network files so different nets can be trained to recognise different fonts.



Learning to **read**

Robin Barnes, author of our ray tracing and morphing packages, describes his latest masterpiece: a complete OCR system, provided on this month's cover disc

This month we explain how to use *Scribe* and over the next couple of months we'll explain how the program works in more detail .

Using the Program

Load *Scribe* and click on the *Scribe* icon to open three windows: the control panel, and the text and sprite windows.

Dragging a sprite or text file to the appropriate window

Hints for good results

Remember poor quality sprites always result in poor accuracy, and best results are obtained at 400 dots per inch. *Scribe* often makes the same mistake throughout a document, like translating b as 6, or o as 0, so using a simple search and replace facility (like in *Edit*) you can make most corrections.

Scribe, like most OCR, is a compromise between speed and accuracy. It is no good having a package so slow you could transcribe faster by hand. For this reason the algorithm to extract letters from sprites was kept simple. Characters must be separated from each other by at least one column of white pixels between them; consequently heavily kerned or closely packed text will not work well with the program. Also *Scribe* will not recognise vertically disjointed characters such as speech marks.

Stretched to the limits

When an area of the scanned sprite is selected, *Scribe* has to find the lines and then the individual letters that make up the text.

Starting at the top of the area, each row is examined. When the row contains one or more black pixels then it is marked as the top of a line. The scanning continues until a row of white pixels is found, and this is marked as the bottom of the line. This process is repeated until the bottom of the selected area is reached.

During conversion, characters are found by looking at columns of pixels along a line. Each character must be separated by at least one column of white pixels, and for this reason some proportional or heavily kerned text will present problems.

The Limits option on the sprite menu can help to overcome some problems. It leads to the character limits window that shows the maximum permissible size of letters, spaces and lines. The values can be entered in pixels, inches or points, and typing a value into any icon (followed by RETURN) will alter the other two in that line automatically.

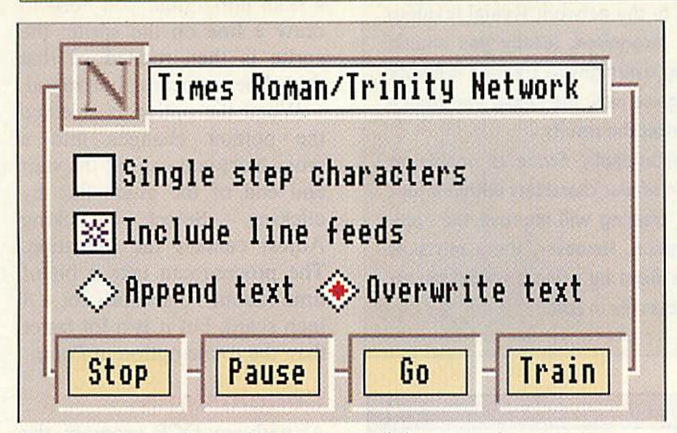
If the Automatic option is set, then the program will try to calculate the character limits each time you select a new area. If *Scribe* makes a mistake you can change the values before starting the conversion process. Usually the calculated limits will suffice but with proportional fonts you may have to adjust the space width.

As well as finding the absolute top and bottom of a line, *Scribe* also attempts to find the character base line. This is the line along which characters without descenders lie. However some letters, such as g, y or p, cross below it. The line is important because it can help to discriminate between upper and lower case characters. The line is found by comparing the percentage of black pixels along a row with a threshold value, the 'base line cut-off'. When finding a text line, the last pixel row above the threshold is taken to be the base line.

The final option in the window is the resolution in dots per inch of the scanned image; this is used to calculate the values of the other options in inches and points when you type a pixel value in.



Setting these values correctly is an important part of ensuring accurate conversion



The Control panel, from where you control the conversion process

loads it. *Scribe* will only work with monochrome sprites (like Mode 0 or Mode 18), and since these tend to be big – a square of 4×4 inches scanned at 400 dots per inch occupies 340K – *Scribe* supports direct Ram transfer. You can also save directly from the scanner software to the sprite window.

Before exploring the more advanced features of *Scribe* try a simple example of text recognition by loading the example sprite file *Book1* on the disc. Do this by dragging the file to the sprite window. If you want to adjust the magnification of the sprite, press Menu over the sprite window and use the Zoom submenu.

Before a section of the sprite can be converted, it must be selected. Click and drag the mouse over a few lines of text. When you release Select, *Scribe* will attempt to find the lines that make up the selected area, when all the lines in the section have been found they are highlighted in red.

Next you must change the values in the Limits box. To do this, click Menu over the sprite window, go into the Limits submenu, and set up the values as shown above. Make sure you press RETURN after each value to register it. These are optimal values for this particular scan, just to get you going; this box is described above.

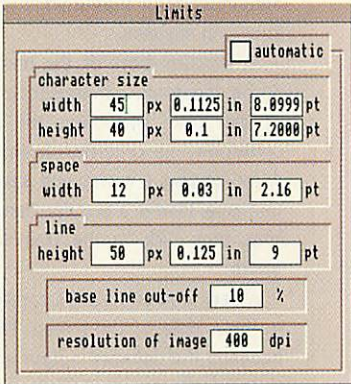
To start the conversion process click on the 'Go' icon on the control panel; the text window changes to show the recognised text. The process can be stopped or paused by clicking on the appropriate icons. The converted text can be saved at any time by clicking Menu over the text window, and saving a text file via a standard save box.

And that is all there is to using the *Scribe* application.

The Control Panel

In addition to the Stop, Pause and Go icons, the control panel shows which network file is loaded and how the program is configured. Think of network files as font definitions: *Scribe* will be able to recognise a font only if that particular network file is loaded. On the disc a network file for Times (Trinity) is provided as the default: we'll provide more over the next few months.

Networks are loaded by dragging them onto the net-



Optimal limit settings for Book1

work icon (the 'N' in the control panel); the name of the network is shown to the right. Networks can be loaded at any time, even in the middle of the conversion process. This is useful if the text contains several different fonts.

If the Single step option is set the program will pause between each character recognised, and clicking on Go will advance to the next character.

The Include line feeds option inserts a line feed at the end of each line to preserve the formatting of the scanned image.

Using the Append text option will allow text to be added to the text window rather than overwriting as occurs with Overwrite text.

Clicking Menu over the control panel brings up the network menu. Network files can be saved by using the save option on this menu. The New Net option creates a blank, untrained net ready to learn a new font (see separate box). The third menu option, Show, opens a window that shows the current character as presented to the networks, and the output of the networks. What this

Training Networks

One of the most powerful facilities of *Scribe* is the ability to train new neural networks from sprites and so create a library of networks which recognise different fonts.

Neural networks are usually trained by a technique known as 'supervised learning'. Each character to be recognised is presented to the network and the output is calculated. This is then compared with the ideal output for the character and the network is adjusted to correct for the error between the two. The process is repeated until the ideal output is obtained. For this to work, the order in which each character is presented to the network must be known in advance.

In practice most of the hard work is done by *Scribe*. It extracts a character from the selected area of the sprite and trains the network using the corresponding character from the text window. After loading a sprite and selecting the required text area, load in a text file that corresponds to this area, then click on the Train icon on the control panel.

A new window called Error Response will appear in the middle of the screen. This shows the error between the network output and the ideal output as training proceeds. Each dot that appears in the window corresponds to a single presentation of a character to the network and the higher up the screen the dot is, the larger the error. The window scrolls slowly from right to left after each presentation.

When the network has learnt the font, all the dots will converge at the bottom of the window. Networks should be trained on more than one example of a single character to improve the final accuracy of the recognition.The best training results come from random or pseudo-random patterns of letters; fortunately most written text can be classed as pseudo-random.

The formatting of the text file is not critical as *Scribe* will ignore all unnecessary spaces and line feeds. If more characters are found in the selected area than in the text file then the program assumes that the section of text repeats. It is vitally important to make sure that characters are being properly extracted from the sprite; this can be done by converting the selected area while using the Show option on the control panel menu.

As the training process is computationally very expensive, the program will take over the whole of the desktop and suspend all other tasks. You can stop training by clicking on the Stop icon in the Error Response window.

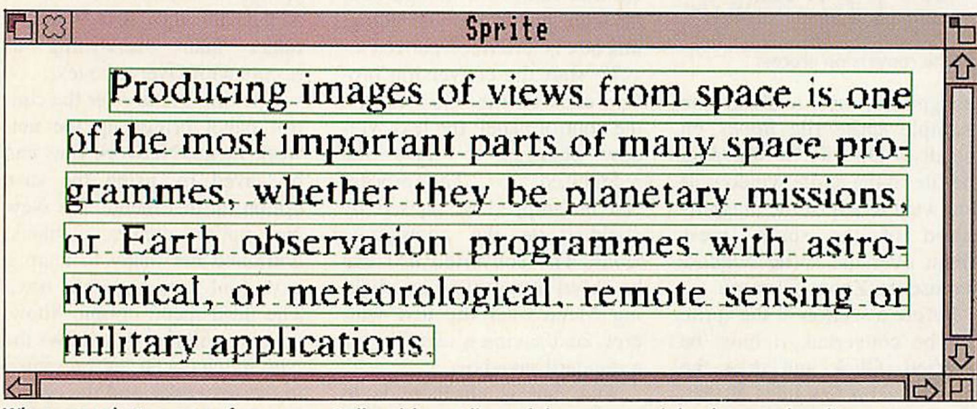
One of the best ways of training networks is to scan in printed examples of Risc OS fonts. The example text file *learnchr* contains a randomly arranged set of characters that can be used to train nets. All that needs to be done is to print out several copies of the file in the desired font, scan them and load the resulting sprite into *Scribe*.

Create a new net by selecting the Blank net option on the control panel menu and enter its name of to the right of the network icon. Load the file *learnchr* into the text window and click on Train. When the network has learnt the font, click on the Stop icon and save the network file using the control panel menu.

If the accuracy of conversion is poor, then you can re-train an existing network to fit the sprite. This is particularly useful if you are working on a large document. Simply select a few lines of text from the sprite and convert them, then load the resulting text file into *Edit*. Correct the mistakes and reload the text file into *Scribe*, and finally click on Train. After re-training, the accuracy should be greatly improved.

Training takes a very long time as each character must be presented to the network several hundred times before it is recognised. Ideally you should leave *Scribe* training overnight to create a network file which can recognise well: the longer you train a network file, the better the results.

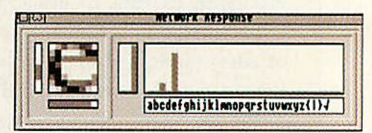
Do note that occasionally *Scribe* is unable to distinguish between similar characters within a font and no amount of training will improve the accuracy of the recognition. However, these mistakes can often easily be fixed by using a global search and replace on the text file in *Edit*.



When you select an area of your scan, Scribe picks out lines of characters, and the character baselines

information actually says will be described in more detail in the next article, but essentially the sprite on the left-hand side is the letter as scanned, and the bars on the right show what the computer thinks the letter is: the higher the bar, the more likely it is to be that letter.

In the example shown here, the highest chance is that the letter is an 'e' (which is correct), but you can see that there is also a small chance that the letter is a 'c': looking at the scan, this is understandable.



The Network Response window

Processing Sprites

As well as the Zoom option the sprite menu contains Limits, Invert and Align options. The Limits option controls how characters are extracted from the sprite (see separate box), and the other two options are for modifying sprites.

Invert reverses the colour of the sprite, which is sometimes necessary as *Scribe* can only work with black text on a white background.

Align corrects crooked scans by rotating the sprite. To make a scan horizontal, you need to draw a line on the sprite: the sprite is then rotated so that this line appears horizontal.

When the option is selected the pointer changes into a cross-hair; you can set the start and end of the guide line by clicking Select. Clicking Adjust cancels the operation. The process can take a bit of time (about 30 seconds for a 4 inch scan), but it is a lot faster than the rotate option in *Paint*.

Conclusions

As with any OCR program, the accuracy of the output depends on the quality of the input. As an objective test, proof copies of a book produced on a 600dpi laser printer were fed through *Scribe*. The accuracy of the conversion was 98%, easily adequate for editing the manuscript.

Next month I'll explain in more detail the workings of *Scribe*, starting with the mysteries of neural networks.



TOWERING ABOVE THE REST



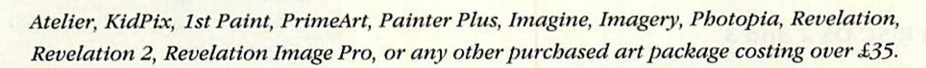
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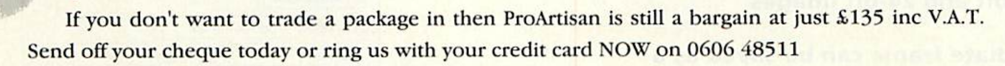


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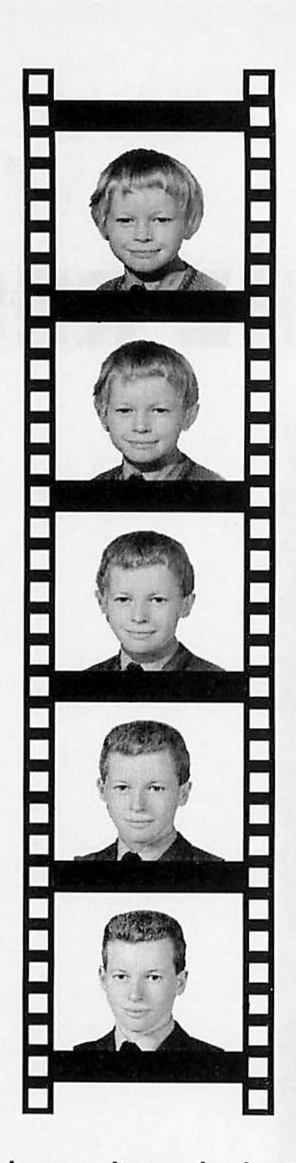






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instantaneous 'thumb-nail' display during morph

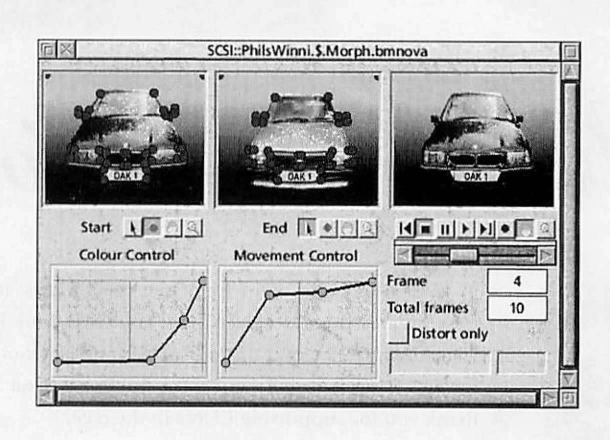
can also produce fades and wipes

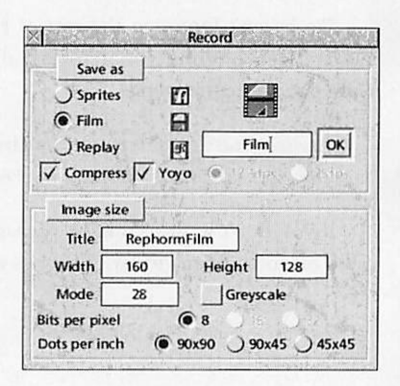
compatible with RISC OS 2 and 3

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Fonts on the Arc used to mean near copies of the original, not any more. LOOKSystems is leading the way, licensing 100 fonts from Monotype. Kell Gatherer reads the small print

TRUE TO TYPE

Time was, not so long ago, that PC and Mac users had to cough up at least £10 per electronic font for DTP use and £35 upwards for a family of fonts. The reason was that Adobe charged a royalty each time it was used and professional users of fonts had to accept that a decent font library was a big investment.

The situation in the Acorn market is somewhat different. The Electronic Font Foundry have long marketed a range of fonts, created specifically for the Acorn machine, for roughly five pound a shot, or less for a font pack. However, many in the Acorn world were quite happy with public domain fonts, often of low-quality (or sometimes dubious copyright). And for serious work, the quality of a font is vital.

Baskerville Semi Bold
Bembo Bold Italic
Braggadocio
Century Old Style
Dante Italic
Garamond
Gill Sans Ultra Bold
Goudy Old Style

A selection from the Monotype range

A badly-produced font will not print well at small point sizes, and although you might get acceptable output from a bubble-jet printer, deficiencies will be revealed when you print out on film or bromide using an image-setter. You can get round this with an emulation of a PostScript font on your Arc (say, Homerton) and arranging for this to be translated into a quality font in the image-setter (let's say Helvetica). But the slightest variation in character spacing leads to unexpected results and until now the only way to ensure complete compatibility was to pay for a font with PostScript compatibility, which involved paying a fee to Adobe.

Then in the PC and Mac worlds, along came an alternative font file format called TrueType, which broke the Adobe monopoly.

The Monotype Range

Among the quality typefaces available is the Monotype range. The Monotype Corporation has been designing and supplying typefaces of the highest quality for nearly one hundred years, first in metal type and now in electronic form. Its range includes famous names such as Plantin and Ehrhardt, and in the twenties and thirties it commissioned Eric Gill to produce classic typefaces such as Gill Sans and Perpetua, still in common use today.

LOOKsystems of Norwich has obtained an exclusive licence from Monotype to distribute its typefaces, and the first pack of 100 fonts to be released is now available at £95 including VAT. This is a price revolution – a Mac user would have expected to pay at least £600 a short time ago.

In fact we Acorn users are doing better than our Mac cousins, since in TrueType form the current price for the Apple is £116.33.

The LOOKsystems Package

So what do you get for your money? The faces chosen form a good starting pack for anyone serious about DTP, with such stalwarts as Baskerville, Bembo, Century, Garamond, Gill Sans, News Gothic, Plantin and Rockwell. There is also a good range of script and headline typefaces such as Palace Script (a Monotype original), Perpetua and Mercurius.

There are one hundred fonts in total (the complete list is given on the right) arranged in 29 families, and most of the body text families are well represented. Gill Sans comes in 11 different weights (light, medium, bold, extra bold, ultra bold and condensed, plus italics). Plantin comes with two extra 'expert' versions for small capitals, lower case numerals, special ligatures, and fractions.

It is a requirement of the Monotype licence that the outlines files are supplied as original, so you are getting the same as supplied to top publishing houses. The IntMetrics files (to do with character spacing, scaffolding lines) are of a similarly high standard, although LOOKsystems are still working on the full Acorn specification, with a free upgrade promised when the improvements appear.

Conclusion

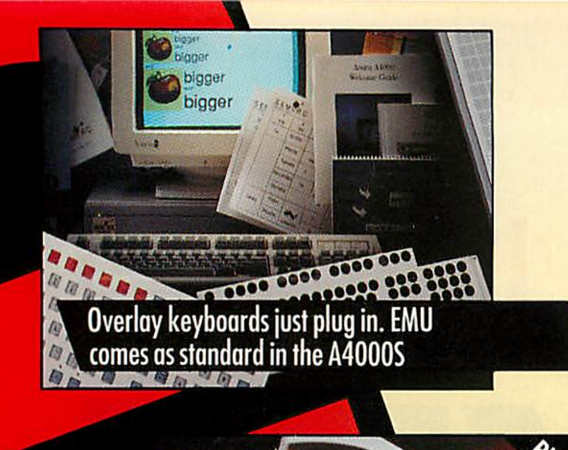
The appearance of high quality typefaces to professional standards and for such a reasonable price can only be seen as excellent news for the Archimedes. LOOKsystems is to be congratulated for signing up with Monotype, and for producing Risc OS fonts of such a high standard so cheaply.

The entire package costs £95 inc VAT. For more details contact LOOKsystems on (0603) 748253.

The fonts

ARIAL light & italic, black & italic, condensed - light, bold & extra bold
BASKERVILLE & italic, semibold & italic, bold & italic
BEMBO & italic, semibold & italic, bold & italic
BRAGGADOCIO
CENTURY EXPANDED & italic
CENTURY OLD STYLE & italic, bold & italic
DANTE & italic, medium & italic, bold & italic
GARAMOND & italic, bold & italic
GILL SANS & italic, light & italic, bold & italic, extra bold, ultra bold, condensed & bold & ultrabold
GOUDY bold & extra bold
GOUDY OLD STYLE & italic
GOUDY TEXT
LOMBARDIC CAPITALS
HEADLINE BOLD
JANSON & italic, bold & italic
MATURA & MATURA
SCRIPTORIAL CAPITALS
MERCURIUS SCRIPT
NEWS GOTHIC & italic, bold, condensed & bold
ONYX
PALACE SCRIPT
PEPITA
PERPETUA LIGHT & bold
PLANTIN & italic, light & italic, semibold & italic, bold & italic, condensed bold, expert & italic, expert bold & italic
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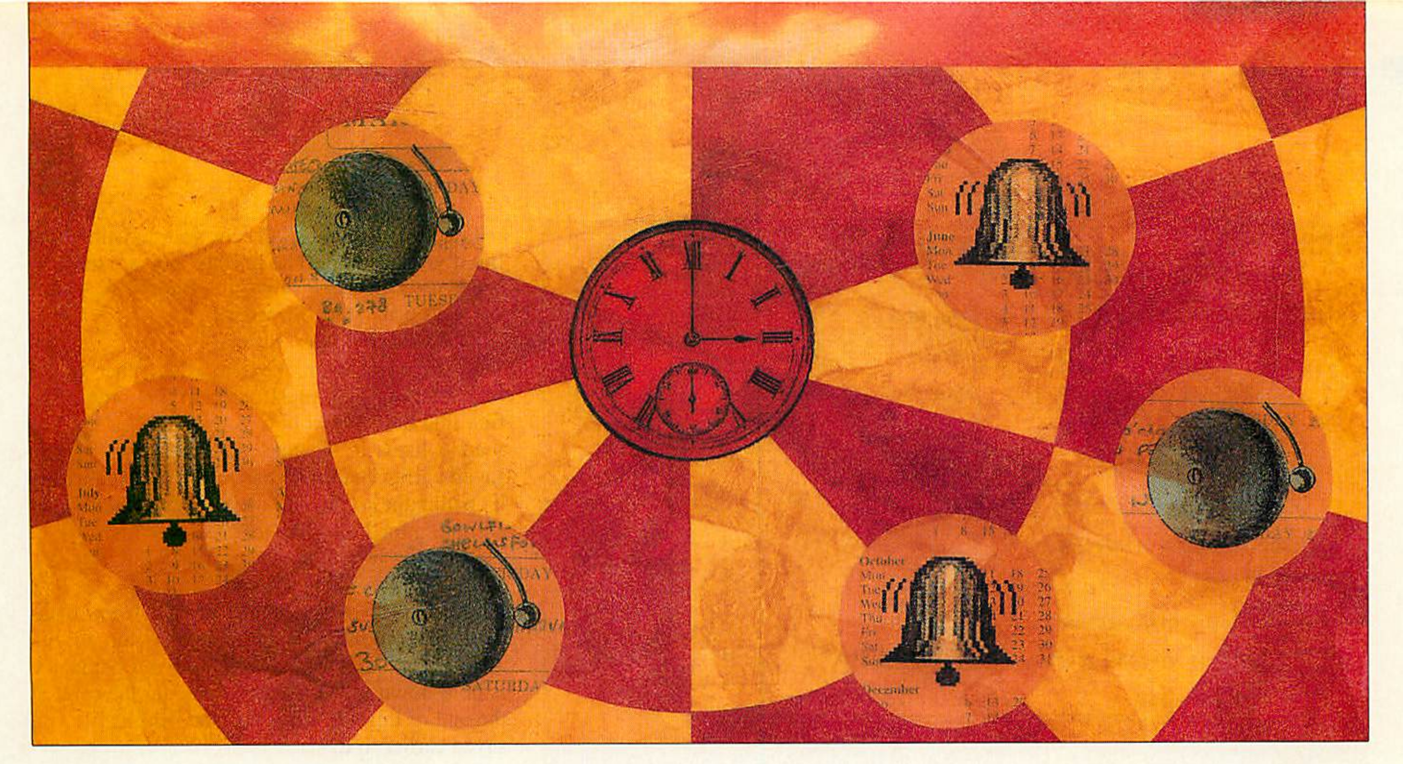
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Saved by the bell

Keep forgetting appointments, your mother's birthday and to get up in the morning? James Richards and Alarm have the answer to your problems

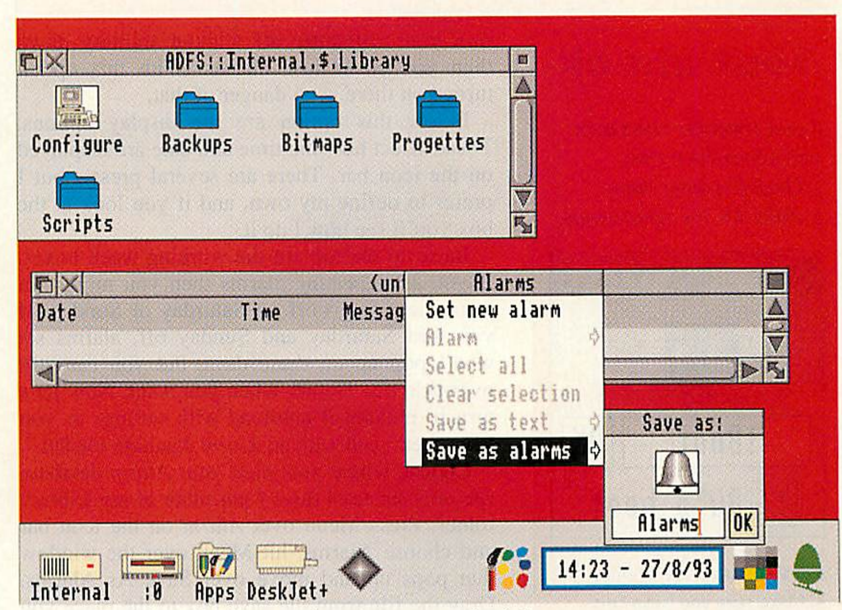
There's one application that sits on my icon bar all of the time. It politely reminds me if I have any meetings during the day; it tells me when the direct debits go out of my account and keeps reminding me when I should make phone calls. That application is *Alarm*, supplied free with all Acorn machines. In its Risc OS 3 evolutionary phase I find it one of the most useful applications I have.

In fact, *Alarm* can go further than helping day-to-day things run smoothly. Automatic backups, yearly or monthly reminders can be programmed to happen automatically. So if you're not using *Alarm* to its full potential read on, and get organised.

Getting Set

Alarm is simple to use once it is set up correctly, and that's the first thing we'll do. Having to double-click on it each time you power up would be frustrating. *Alarm* has to be set up to load as soon as you've turned it on, any alarms that you have set have to be loaded too, but *Alarm* can't be auto-loaded like *Edit* for instance.

Load *Alarm* (you'll find it in the Apps folder), and in its icon bar menu you'll find Setup. Choose this and a large window will pop up which allows you to control the way *Alarm* looks and behaves. First of all, and most importantly, ensure that Automatically Update Alarm Database is turned on. This means that any changes you make to alarms, or any alarms you add will be saved straight to disc. If you leave this setting turned off you'll find yourself having to save your alarms before shutdown, and if you



A permanent Alarm database can be set up on your hard disc

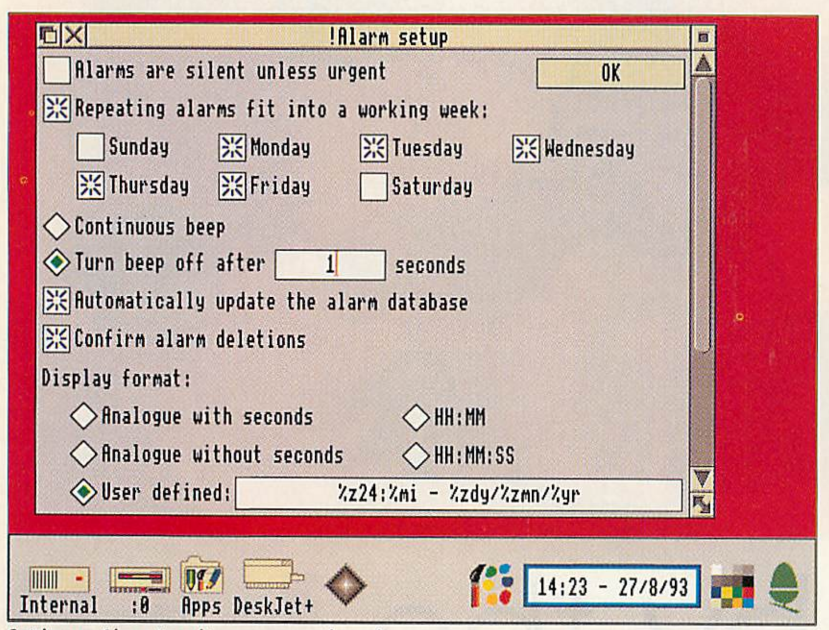
Alarm display formats

The Alarm display format looks complicated, but is in fact really easy to use, here are some examples to try –

%z24:%mi - %zdy/%zmn/%yr will look like 14:54 - 23/12/93

%z12:%mi%pm will look like 1:05pm

%z24:%mi - %zdy %mn 19%yr will look like 23:34 - 21 October 1993 (you'll need a long icon bar for this one)



Setting up Alarm to suit your personal needs

Task alarms

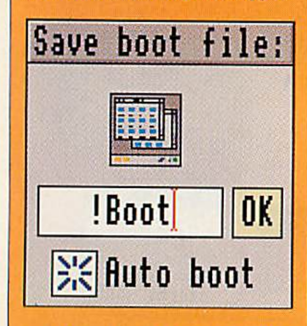
Every day I work on my files. I have *DataPower* databases, *Impression* files and *Draw* files. I get *Alarm* to copy all of my important files to another part of my hard disc every day.

Use *Edit* to create and save an obey file that when double-clicked on will copy a file from one place to another on your hard disc. Now set a single-day repeating alarm, and instead of typing in some text, drag this obey file to the Set Alarm window. Now *Alarm* will execute this file every day. Whole folders can be copied into a backup folder first thing in the morning automatically; it doesn't take long and may save a big headache later.

Boot check

If your computer won't boot with a boot file try this.

1. Check it is called *!Boot*.
2. Check it is the right filetype:



a desktop boot file or obey file.

3. Make sure you have configured your startup filing system and drive properly. If you're using an Acorn IDE hard disc use commands: *Configure Drive 4, *Configure Filesystem ADFS.
4. Check boot options are set correctly. For an obey file press F12 and type Opt 4,2; make sure CSD is on the drive with your boot script.

turn your computer off without shutting down then you could lose alarms. With this option turned on there is no danger of that.

Below this option are the display options. These affect how the time and date are displayed on the icon bar. There are several presets but I prefer to define my own, and if you look at the box you'll see how I do it.

Back up the top are the working week boxes. If you set repeating alarms then you might not want them to go off on Saturday or Sunday. If you turn Saturday and Sunday off, alarms set won't pop up on these days, but you can still over-ride this feature when you want. Now let's turn to making it autoload with settings as you want them, and with an *Alarm* database loaded.

Choose where you want your *Alarm* database file on your hard disc; I put mine in my Library folder. Press Menu over *Alarm* on the icon bar and choose Alarms, hit Menu over the window that pops up and move over Save As Alarms. Drag the file from the save box to the place you chose on the hard disc. Making *Alarm* autoload is simple, and if you haven't a boot file already you're about to get one.

A boot file defines what is automatically loaded when you switch on and to create a boot file from scratch, simply set up your machine as you want it to look, with the Alarm application loaded and any others you need. Then press Menu over the acorn on the far right of the icon bar, move over Desktop Boot and drag the boot file from the save box to the root directory viewer of your hard disc.

Load this file into *Edit* – or your existing boot file if you have one.The lines to look are these:

```
Set Alarm$Options -timeout "1" -weekwork 62 -format
  "%z24:%mi - %zdy/%zmn/%yr"
Run Resources:$.Apps.!Alarm
```

They may not occur next to each other in the boot file, but they must occur in this order. The first line tells *Alarm* how you have set it up. The second loads it. To make the database file you saved earlier load automatically you need to add its pathname to the end of the second line. After editing, mine looks like this:

```
Run Resources:$.Apps.!Alarm
  ADFS::Internal.$.Library.Alarms
```

I have tacked the pathname of my *Alarm* database file on the end of the command to run *Alarm*. The quickest way to enter *your* pathname is hold down SHIFT and after placing the caret at the end of this edit line, drag the *Alarms* file you saved earlier to it.

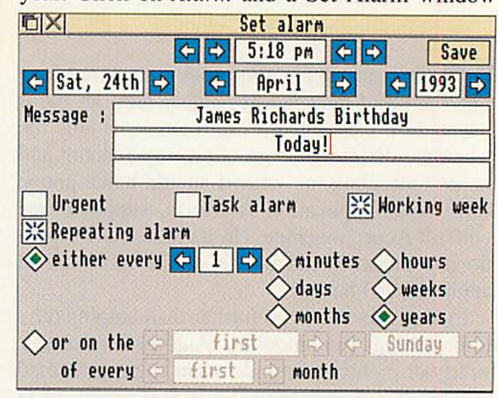
Resave this boot file or add the two lines to your existing one. Now, when your machine starts up, it loads with the settings you chose, ready to accept your alarms.

If you want to change your setup, save a boot file to *Edit* as described earlier, find the new *Alarm* setup command and replace the old one.

Setting Alarms

Now when you set an alarm you can shut your machine down, and when you turn it back on it will still be set. Let's start with my birthday.

This will be an alarm which repeats every year. Click on *Alarm* and a Set Alarm window



Setting an alarm to repeat every year on a certain day

pops up. You type in text by clicking in the writable icons. Set day and date by clicking on the arrows either side of these fields. Click on the Repeating Alarm button and it's simple to make this alarm repeat once a year.

Setting one-offs is simple and they can be used to remind you to do things that people have asked you to do. For instance, if I'm told I have to call someone at 15:00 tomorrow a quick click and a short note means that I won't forget – assuming of course that I'm in front of the computer when the alarm goes off.

Once you've set an alarm, changing it is easy. Choosing Alarms from the icon bar menu shows you all your alarms. A double-click on the one chosen for changing brings up the window that lets you reschedule it.

I hope you can see the power of *Alarm*; it's quick and easy to use. So if you haven't got enough corners on your handkerchief, get it on your icon bar now.

SCANNER IN THE WORKS

You've played with the hardware and scanned in everything from a Constable to a Cornflakes box, but what can you do with the results? Pete Worrall's vivid imagination throws up some ideas

To scan or what to scan that is the question? These days scanners of all shapes, sizes and prices are available for the Arc, but what can you actually do with one?

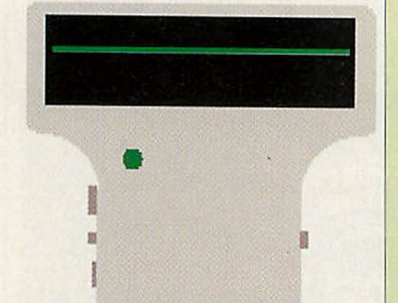
First, it is important to remember that the mouse is not a pencil although it is often used as a drawing tool to produce freehand art. A scanner can change all that by copying line drawing accurately, releasing more time for colouring and the like, in a *Paint* package. Okay, so your pictures can be copied from paper onto the screen, but that is just the beginning.

The Watford Archi MK2 hand-scanner resembles a miniature vacuum cleaning head and is a cheap (£99 for the A3000) and cheerful means of transferring images onto the computer screen. It comes supplied with an external box which fits into the expansion board of the A3000.

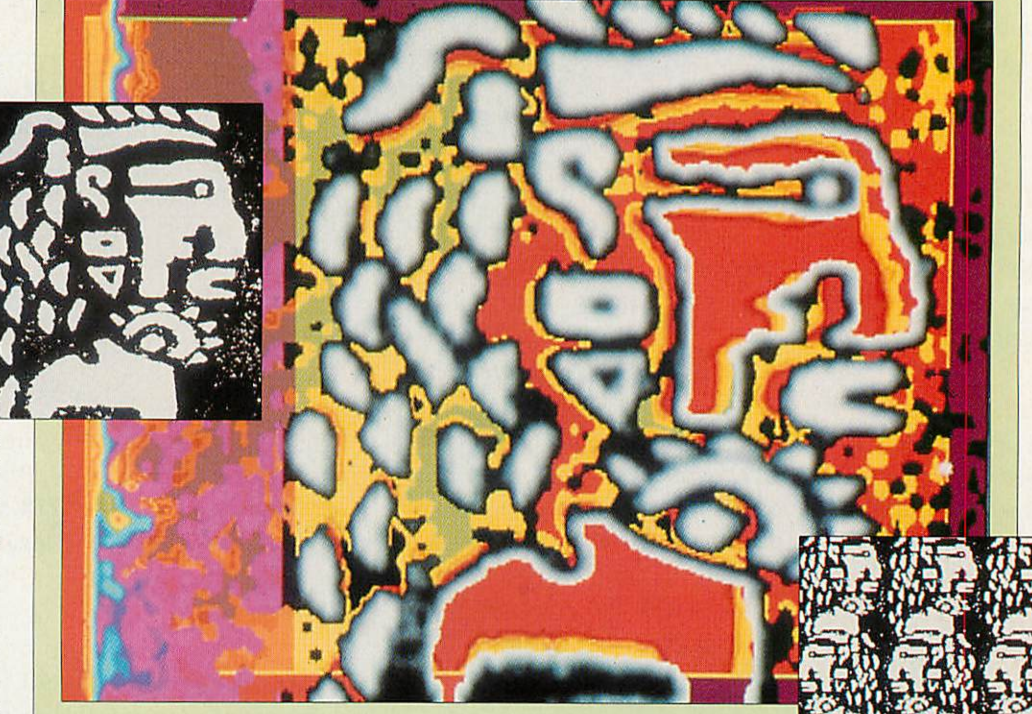
Once installed, the scanner icon automatically appears on the icon bar. The scanner software is all in Rom, located on the interface board and so is instantly available for use at any time. Selecting on the Scan icon displays the configurable 'scan buffer size window' with the default size set to about 100mm x 100mm.

Selecting OK reveals the grey scanner window, with the menu offering a range of options. Select Scan, and the sensing strip (CCD or charge coupled device) on the head of the scanner turns green for go – or in this case Scan.

If you hold the scanner with button one pressed down, then you move the scanner slowly and steadily over a picture, the picture will be transferred onto the screen.



Computer generated cards



Lino printed Greeting Cards provided the starting point for this Year 10 Design Project at Willingsworth High School.

After producing sets of lino-printed cards in the traditional way, drawing, cutting the lino, inking and printing, we decided on a new line in computer generated cards. This allowed pupils to compare and contrast traditional techniques with the new technology approach.

Scans were used to produce repeat designs using Clares *Artisan2*. Then the Screen Sprite Plot function in the Tool menu was used to repeat the image in different ways.

The pupils used the 16-colour Alter palette option on the *Draw* menu to redefine colour values. Opinions were divided on the merits of the two means of production. Some thought the computer was faster and could be used to try out colours and compositions. Others preferred the manual ink, sweat and grind of the print studio.

The excellent Sprite Fill option (often overlooked) on the Fill Menu, pours one coloured print into the other giving vibrant results.

Scanning for movement

Muybridge, the pioneering English photographer working in the late 19th century was well known for his studies of animal and human movement using instantaneous photography techniques. In much the same way Acorn *DIY Replay* edits and analyses video frames on the computer screen.

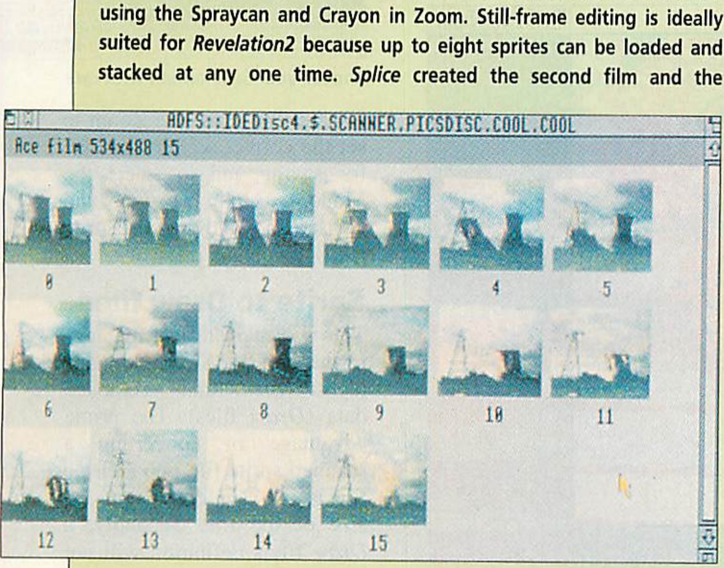
Here, a photography postgraduate student at the University of Central England scanned a sequence from Muybridge's 1901 'The Human Figure in Motion' series and saved the pictures as 17 separate frames. These were loaded into *Splice* (Oak Solutions, £34) which converted them into a single *Film* format so they could be played back like a flick-book on the screen. The low resolution of the scan (on Photo setting), actually contributed to the overall playback quality.

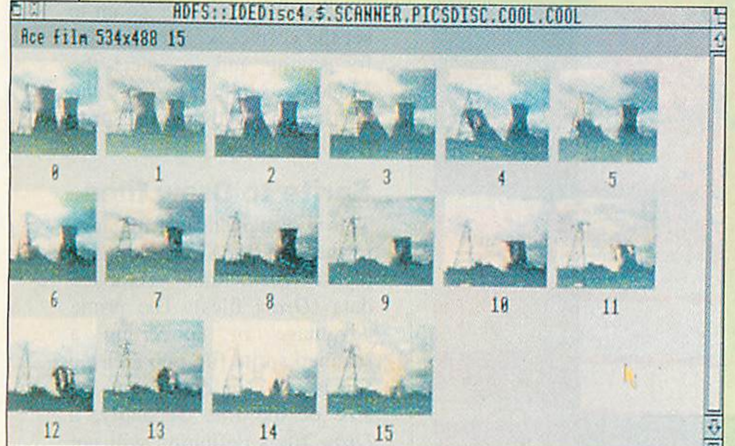
The next stage involved producing a re-touched colour version of the film. The original scans were loaded into *Revelation2*, and enhanced using the Spraycan and Crayon in Zoom. Still-frame editing is ideally suited for *Revelation2* because up to eight sprites can be loaded and stacked at any one time. *Splice* created the second film and the monochrome and colour were simultaneously played back on screen. This technique is repeated in the 'Prince Charles turns into a Clown' routine produced by Tina a student at the University of Central England. sequence, in which the scanner was only used for the first outline picture.

Again, *Revelation2* was used to transform Prince Charles by freehand drawing over the original scan and eight different screens were saved and loaded into *Splice* and converted into a single film file of 103K.



The final example simply illustrates the use of a colour scanner, in this case the Iota Image Colour Scanner which will scan up to A4 in size and even scan 3D objects; you can have a great deal of fun making moving plasticine morphs with this one.





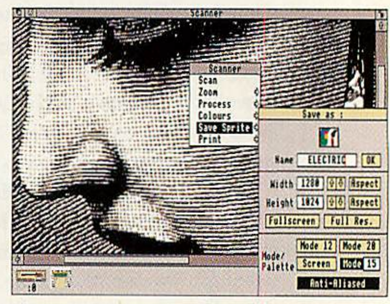
This time a Year Seven pupil at Willingsworth High School brought in a set of 16 colour photographs taken by her father, one Sunday morning a number of years ago, showing the historic moment when the Ocker Hill Cooling Towers in Tipton were demolished.

Each photograph was scanned, saved and converted into a 739K film using *Splice*. The final result as you can see was explosive in both senses of the word. Any time-lapse photography, using subject matter such as growing flowers, scientific experiments or crowd movements are ripe for digital investigation, as the pioneering Muybridge had attempted a hundred years earlier.

It is important to note that *Projector*, supplied with *Splice*, is public domain so your films can be distributed and shared with with others.



To begin with, experiment with settings. The scanner switches are: letter (line art, engravings and so on); photo (greyscale pictures) switch, light/dark tuner, resolution switch, settings from 100 to 400 dots per inch as shown in the diagram. I use 400dpi, good for line art.



Choose your Save option with care

After the scan, use Zoom to set the correct screen area size for saving and to select the Mode – usually 12 or 15 and Fullscreen – and drag the sprite file onto a blank disc.

Sprite to Draw files.

The two main different image formats on the Arc are bitmaps (sprite files) and vectorised data (*Draw* files). The prime advantage of converting a scanned sprite file into a *Draw* file is in the reduction of the size of the file. Secondly, a *Draw* file's definition will not be lost through scaling; see what happens when you enlarge a sprite. Thirdly, printing time will be less.

The main disadvantages lie in the actual conversion, which can alter the original sprite. Also, detailed pictures can take a long time to convert. As an example an original sprite file of 14K can be reduced to a 2K *Draw* file, with some loss of detail.

The three main contenders in the conversion business are *Image Outliner* from Iota Software at £72, *Tracer* from Midnight Graphics at £46 and *Trace* from David Pilling at £5. The first two offer advanced tracing options, but *Trace* is a good, cheap option.

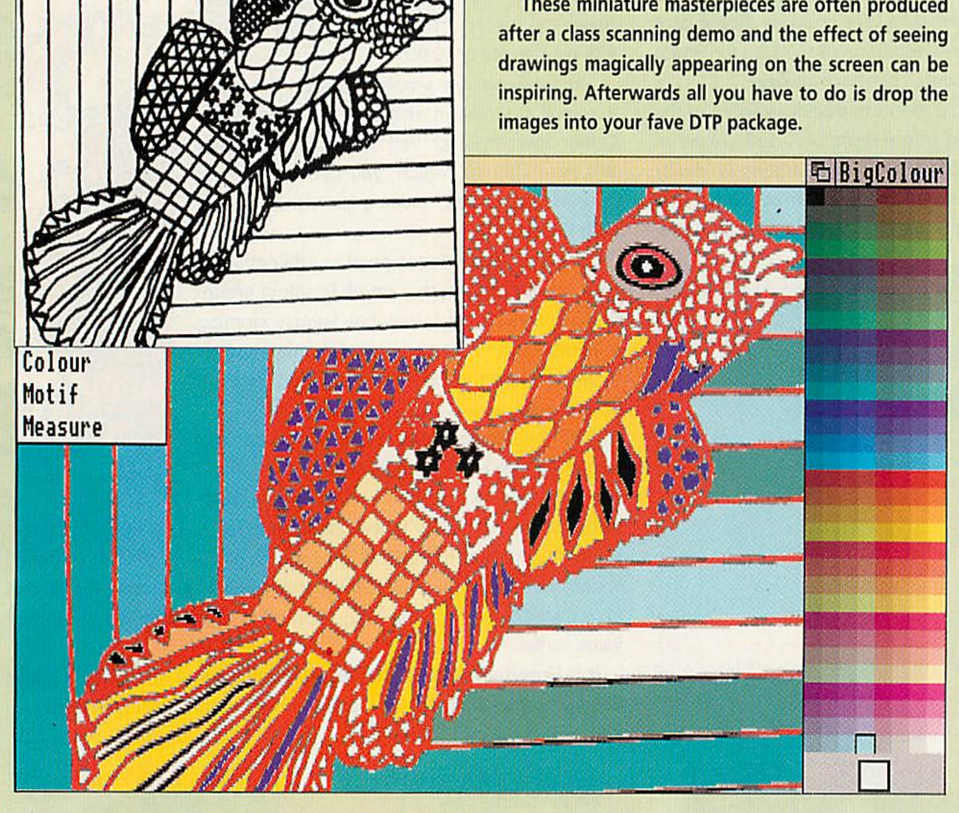
Once you have your scanned pictures all that remains is to find an interesting use for them. Decorating these three pages you'll see a few ideas I have used in my own art workshops.

The clip art library

Most schools are involved in desktop publishing and clip art makes an important contribution towards the look and feel of a newspaper or magazine.

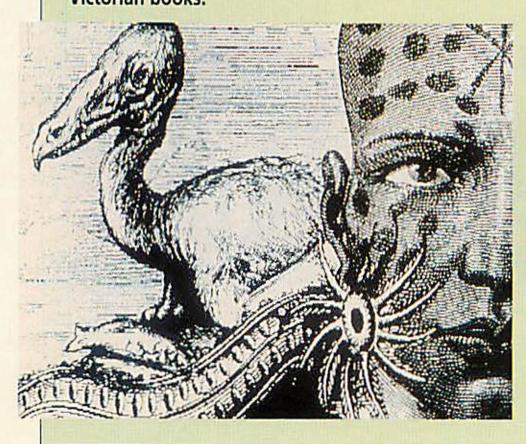
Clip art is used to break down the monotony of large chunks of text. It is widely available in shapes, sizes and categories to suit your every need. Using the DIY approach, a class of children produce small biro drawings about 3 x 3cms and scan in their results. In this way the copyright is yours, it's free and the drawings can be customised for your own use. Subject matter ranging from Easter eggs, love hearts (Valentines Day), Christmas decorations, even cartoons of their favourite teachers could form part of a graphics project.

These miniature masterpieces are often produced after a class scanning demo and the effect of seeing drawings magically appearing on the screen can be inspiring. Afterwards all you have to do is drop the images into your fave DTP package.



The dream ticket

Artists in the 20th Century have explored collage in different ways. One example is the surrealist artist Max Ernst, known for fantasy collages produced by cutting and pasting together different images from Victorian books.



Scanners can be used to produce collages without cutting up the book and the success rests on the originality of material scanned. Most art packages can be used to compose your cutouts (scanned pictures) and in this case I used *Revelation2* because the sprites are easily accessible on screen for use at the same time.

After loading your scanned sprites, create a new blank full screen. Then cut out the first image and paste onto the blank screen. It's useful to experiment with Shrink which allows selected colours to be transparent (for merging images) and Scale.

Whatever you do, beware of copyright regulations regarding copying pictures from books (in other words read the small print at the front).

Try to use a scanner as a conceptual tool to explore new directions. Above all remember, it is not necessarily the quality of the image that is important, it's what you do with it.

THE END

SHARPEN UP YOUR IMAGE

CALLIGRAPH A4-1200 Direct drive laser printer

With the highest resolution printer available for Acorn computers

The Calligraph A4-1200 – the highest resolution printer available for Acorn RISC machines.

This very affordable direct drive laser printer is the latest addition to our existing range of 300 dpi A4 to 1200 dpi A3 printers. The engine is hardware enhanced to 1200 dpi, giving perfectly smooth characters and curves; print quality is further enhanced by microfine toner. The printer utilises the latest in laser technology giving very sharp and clean output with virtually no toner splatter or banding.

The A4-1200 allows you to vary the resolution of the printed image depending upon whether you need speed or quality: 300, 400, 600, 800 and 1200 dpi resolutions are available. The higher you push the resolution, the greater the number of greyscales the engine can display... no more image degradation when you raise the resolution.

Consumables are long-lasting – photoconductor kits last for 30,000 pages and toner sets 15,000 pages at 4% coverage, making it a very economical printer engine to run. Available in either single bin or dual bin formats, this compact desktop laser printer is quick... it spits out pages at 8 ppm. The paper bins hold 250 sheets each. That's an hour of printing without even filling the paper trays!

The printer is supplied complete with all consumables, cables and documentation as well as RISC OS printer driver software for Acorn RISC computers.

*** Limited offer £999**



The printer illustrated is the dual bin version.

*** Price for orders before 31 October 1993 (single bin version).**

Easy to use software

The new printer driver software drives all the current Calligraph printers and includes many features required by professional printers and publishers producing final camera-ready copy. The software supports variable screen density – between 30 and 170 lines per inch screens are ideal – more can be designed by you.

Gamma correction is used to correct for varying density effects experienced when printing to different materials, and can also be used to perform some image correction when printing poorly scanned sprites. User-defined greyscale lookup tables perform special effects such as altering the brightness or contrast of a page, to give the output more 'snap'.

Typesetting features such as wrong-reading (mirrored) pages, negative pages and virtual sprites are supported. For quick proofing, sprites and fonts can be printed without halftoning. These features perform a level of image enhancement not available on any other printer.

The laser engine is fully controllable from your computer and printer status messages appear on your screen, this means not having to leave your machine to operate menus and buttons on the printer.

Calligraph laser printers need no extra expensive memory or fonts (unlike PostScript or LaserJet type laser printers) and produce complex pages of text and graphics in tens of seconds, rather than up to 20 minutes or more required by other printers.

CALLIGRAPH TQ-1200 Direct drive laser printer

Also available – A3 1200 dpi laser printer and plate-maker

An integral part of the Acorn Publishing System, the Calligraph TQ-1200 produces camera-ready copy in a fraction of the time to typeset similar work. Driven by the same software as the A4-1200, it has all the features of that printer, plus control over the laser power and transfer bias for printing to non-paper materials. Calligraph specially modify this engine to print reliably on all materials. The printer is an 8 ppm laser unit capable of printing to paper, transparencies and polyester printing plates. All standard sizes from A6 to oversize A3 are supported. An optional second paper tray unit and automatic paper feeder are available to supplement the manual paper feeder.

The A4-1200 will be demonstrated at the *World of Acorn* computer show.



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NEXT

MONTH

BBC ACORN USER

School case study

One area of our education system is well-known for its ability to confuse and infuriate the most experienced teachers. Packed with jargon, it is a labyrinth of topics within keystages, within strands. In the first part of our new series, we show how Highgate School navigates the troubled waters of the National Curriculum

Future prospectus

Netherhall School decided to impress its potential students with its CD-Rom based prospectus. Find out how they did it in our special case study

Reviews

Reviews of the latest school software and a preview of the Bett show

PLUS

The best of 1993

To mark our January issue, the *Acorn User* team look back at the year that was: what were the highlights and lowlights of 1993?

Third dimension

Watch a chair falling down a flight of stairs, or a handkerchief falling gently over a sphere. All in our amazing new 3D application

Budget C

We review a budget version of the C programming language

Plus

All the news from the Acorn World show

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BBC Acorn User is published by Redwood Publishing, 101 Bayham Street, London NW1 0AG.
Distributed by BBC Frontline, Park House, 117 Park Road, Peterborough



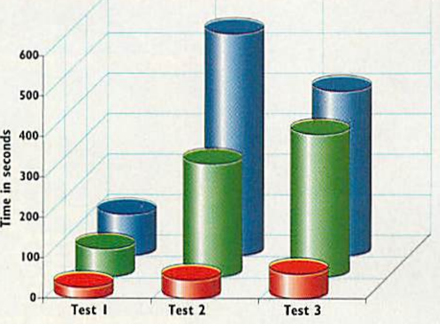


The range of TurboDrivers has expanded to include versions for the Hewlett-Packard DeskJet and LaserJet range of printers, as well as the Canon bubblejet range. The latest release 3 versions are now fully RISC OS 3.1 compliant, offer new advanced features and are faster than ever before.

The bottom line is that if you value your time, the TurboDrivers are for you - they can render pages and give control back typically at between three and ten times faster than Acorn printer drivers or Ace PROdrivers. Indeed once the image has been rendered then the printing continues entirely in the background - as fast as the printer will go. This makes a large difference for just one page and an enormous difference if you are printing more than one copy of each page.

Comparative timings

- TurboDriver times
- Ace PROdriver with autospool
- Acorn driver or Ace PROdriver with no autospool



Test 1 - A single DTP page of text and scanned graphic images

Test 2 - Two copies of a three page text and graphic document

Test 3 - A complex full page of graphics from ArtWorks

The timings indicate the time in seconds to get control back. All tests performed on HP DeskJet 500 printer using a 4Mbyte A440 with an ARM3 fitted. Other machine combinations show similar performance gains.

FEATURES

- Full 24-bit colour support for Canon BJC-600/800 and HP DeskJet colour printers.
- Three or four colour separations-even for mono printers.
- Extensive halftone screen control-different screen types, angles, screen density; features you would normally only find on expensive PostScript printers.
- Print from file entirely in the background.
- Fully RISC OS 3 compatible - works with !Printers and supports rotated text and sprite printing, multiple printers etc.
- By far the fastest printer drivers available for Acorn 32-bit computers - see chart.

Canon TurboDrivers £49 + VAT (£57.57 incl.)
(supports all BJ-10, BJ-200, BJ-230,BJ-300 BJC-600 and BJC-800 printers)

HP TurboDrivers £49 + VAT (£57.57 incl.)
(supports all monochrome and colour DeskJet and LaserJet printers)

Please specify printer type when ordering. The BJ-230, BJC-600 and all HP TurboDrivers are only suitable for RISC OS 3.1 machines. 2MBytes required.



Computer Concepts Ltd

GADDESDEN PLACE, HEMEL HEMPSTEAD, HERTS HP2 6EX TELEPHONE 0442 63933 FAX 0442 231632
Email info@CConcepts.co.uk

GAME SHOW

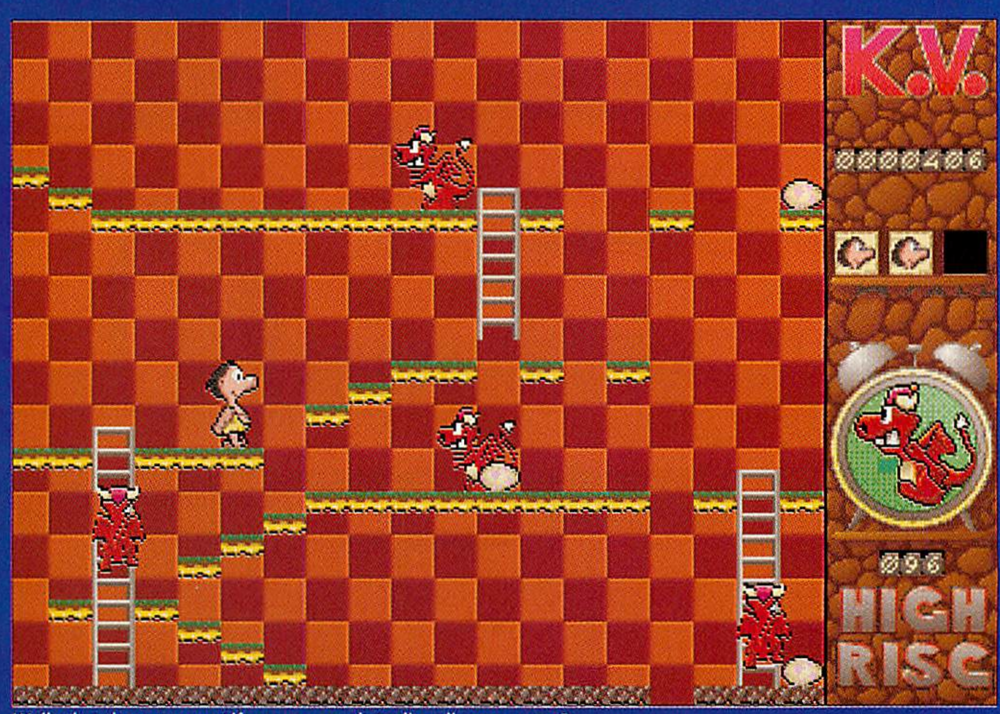
What? You want more? You get a 32-page games supplement, free with this magazine, and you want more...

Well, as it's nearly Christmas I suppose we'll let you off. How about a brief look at some games for this Christmas that won't make the jaws of your ageing relatives drop when you tell them the damage to their pocket?

BUDGET GAMES

A new company, High Risc Software Developments, has produced *KV*. It's about a little caveman who has to collect eggs and avoid evil dragons (presumably, the dragons are unhappy that *KV* is stealing their offspring-to-be and aren't really that evil after all).

KV is a ladders-and-platforms game in the strictest sense, there being 100 levels of



Well what do you expect if you go round stealing dinosaur eggs?

PLAY IT AGAIN SAM

Supplier: Superior Software
Tel: 0652 658585
Price: £24.95

Play It Again Sam is another way of getting games on the cheap. Auntie may think £25 is a lot for a Christmas present until she hears what you get for it. And if you want a tip to help convince her to splash out on you suggest this. *Play It Again Sam* is crammed with golden oldies.



Arc Pinball: just like the real thing

Superior has bundled two of its old titles, *Zarch* and *Master Break*, with one old title nobody really ever took a good look at- *ArcPinball* - and one game that is so incredibly old it probably makes Auntie look 15: *Repton 2*.

Repton 2 is of course a BBC micro game, one of those relics from a distant past that you either remember nostalgically as a green lizard that occupied you for hours on end while you tried to fathom out clever puzzles and kill freaky-but-cute monsters, or you didn't use a

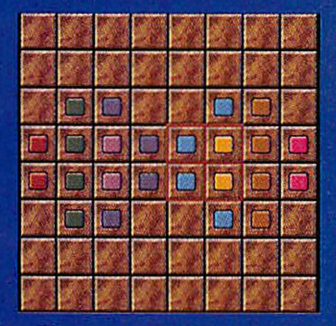

Repton 2: one of the most addictive games ever, says our technical editor

ladders, platforms and more ladders to complete. *KV* costs a mere £15 including VAT and is available from 51 Mostyn Avenue, Syston, Leicester, LE7 2ET.

QUAD

If you're more of a thinker than an egg-thief then *Quad*, from Trax Software, might appeal. It's a puzzle game a bit like *Reversi*, in which you have a set of coloured counters on a flat grid.

To begin with there are a few counters sprinkled over the centre of the grid in no particular order and the aim is to arrange them along lines of the same colour, according to an indicator chart at the bottom of the screen.

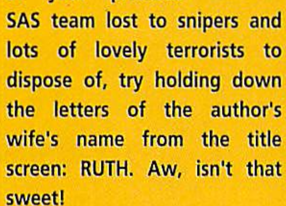


You use the mouse to position a small grid over four counters and swap them all round. With a ticking countdown and a digitised voice that says: 'Hurry up!' the pressure is high; very simple but a lot of fun. *Quad* is 'budget' but no price has yet been announced. Contact Trax Software, 58 Dunkeld Avenue, Filton, Bristol, BS12 7RQ.

And don't forget £15 *Blood Sport*, reviewed this month. Read Game Show next month for the last minute Christmas games.

Cheats

Hostages



To skip to the level of your choice, with none of your precious SAS team lost to snipers and lots of lovely terrorists to dispose of, try holding down the letters of the author's wife's name from the title screen: RUTH. Aw, isn't that sweet!

James Pond

The password is YNGWIE J MALMSTEEN (he's a Swedish guitarist, just in case you didn't know.) The Bear sent this one in.

BBC micro and you don't know what on earth I'm talking about.

It has been converted by the man who brought *Repton 3* to the 32-bit scene, so the look and feel is the same as that of the original, BBC version. I don't think there has ever really been a puzzle game quite like *Repton*. Graphically, musically and all that. Naff, but try turning off and going to bed after an hour of playing and you can't... it really is that addictive.



More to the point, where is he going?

ArcPinball is worth having, being the only really convincing pinball game for the Arc. The ball bounces around very realistically and the flippers and springs work perfectly. Okay, the graphics may be a little dull and the whole pinball table isn't particularly big, but for those of you who like this sort of thing it does the trick.

As for *Zarch* and *Master Break*, well, you can't lose; they're ace. *Zarch* is the all-singing all-dancing version of *Lander* (the 3-D shoot-em-up that you got free with your machine). *Master Break*, is a version of the pub perennial *Give Us A Break*, but without the irritation factor of 'Hairy Monster' Dave Lee Travis.

All in all you can't go wrong for only 25 quid and Auntie would be sorely mistaken to overlook this one. A handy stocking filler.

DEMON'S LAIR



The lair is displayed in 3-D isometric fashion

Fourth Dimension
Tel: 0742 700661 / 769950
For All 32-Bit Machines
(2 Megabytes needed)
Price: £25.95

In this new arcade adventure from 4D, your character, Bob, starts off in a virtual Milton Keynes. Suburban houses stand next to pyramids and checkerboard grass. A demon has been terrorising his neighbourhood and Bob's the one who's drawn the short straw and sent into the demon's world to sort things out.

The lair is displayed in a 3D isometric fashion (like looking down from the corner of a room) and you have complete freedom of movement to go anywhere, pick up and use any objects you might find and generally explore. A clever routine works out when you're standing behind something and makes it partially invisible so you can still see yourself.

Map-making is tricky, since rooms are all different shapes and the lair has multiple levels. You have to rely on your memory to find your way around. The rooms have names which are displayed at the top of the screen as you enter.

You can carry two objects in your pockets at one time, so you have to make notes and think what's needed where to solve a particular problem. Bob only has one life, I found the controls a little bit awkward. It's especially tricky to get on and off ladders: you have to climb the ladder, rotate yourself around 180 degrees and then walk backwards.

Demon's Lair is billed as a family game, so there aren't any weapons or acts of overt aggression: karate kicks is about as violent as it gets. This doesn't detract from gameplay at all though; in fact it's quite refreshing to see a well-designed, meaty arcade adventure without the blasting and zapping. The logical puzzles are challenging, and there's a shallow learning curve so no-one should get stuck.

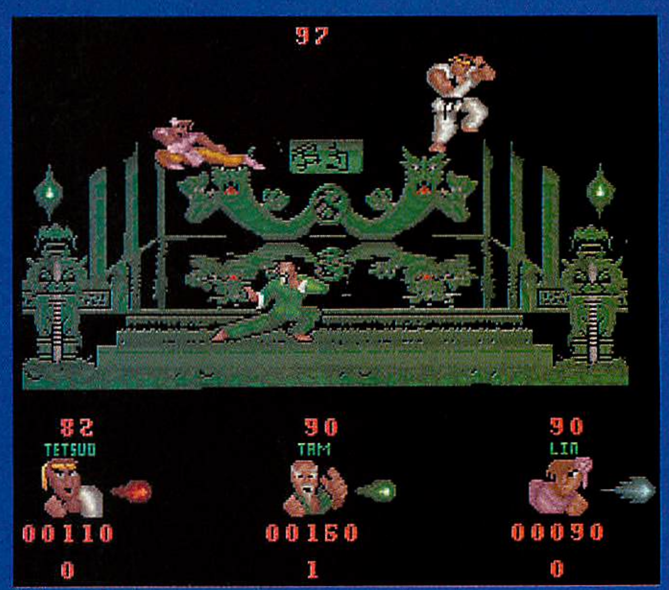
The graphics aren't as good as they could have been and sound is just squeaks and whistles. When Bob's not Cossack dancing, he looks like a speed-walker. Not quite as slick as *Pandora's Box* but still worth the dosh.

Mat Tizard

Ultimate adventure

Isometric arcade adventures are nothing new. Beeb games like *Knight Lore* (where you play a man doomed to transform into a werewolf every five minutes) and *Alien 8* (in which you were a little R2D2-like robot) are now part of gaming history. The hi-res graphics and logical puzzles stretched the machine in a way few games did.

BLOOD SPORT



Kick, punch, stomp, gouge etc...

Supplier: Matt Black.
Tel: 0733 315439
Price: £14.99

Blood Sport is a martial arts beat-em-up and there are two ways to play it. Either you learn all the possible kung-phooey manoeuvres that can be mathematically-produced from a combination of five keys (or joystick), or you can just enter the tournament and start hammering the keyboard. Hammering the keyboard has distinct advantages.

For starters, you don't need any brains to do this; even a monkey – bored of attempting to randomly type Shakespeare on a nearby typewriter – could play. Secondly, you have the edge on surprise attacks; you don't even know yourself when you're going to attack so it comes as an even greater shock to your opponent that you've figured out which button produces a flying kick.

Most of the time I only managed to perform manoeuvres that resembled my Dad's attempts to dance at weddings. Meanwhile my adversary was efficiently pulverising me. In the end I think the best method is to learn a few snappy moves by heart then guess the rest.

The tournament takes place in a titchy area, probably less than a quarter of the overall screen, with tiny characters and dim backdrop scenery. You can choose to play against the computer, or a friend or both and defeat ten opponents, each of whom has a special skill.

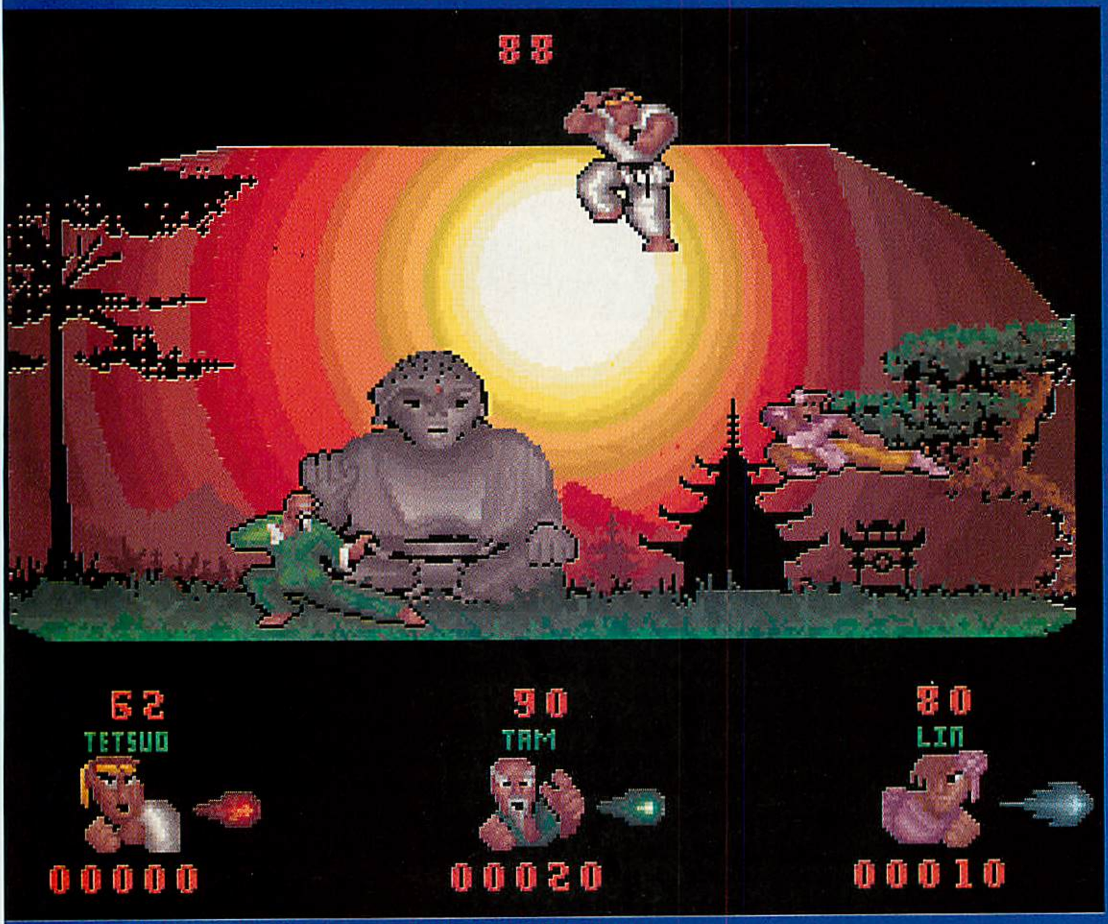
Just to prove it isn't a fix, you can decide to be any of the ten characters and the computer randomly elects to be another. In a very quick exercise on damage limitation I decided the first thing I needed to learn was my special deadly skill. It turned out I had an impressive ability to whip up a whirlwind in my hand and send it spinning in the direction of Master Tam, whom I discovered was 'the best'.

It was rather like the scene in that Indiana Jones film when Harrison Ford is faced with a ninja who stands there demonstrating his amazing skills. Indie pulls out his gun and blows him away. I tried that but Tam was on his feet in seconds.

He leapt around the screen like a kangaroo, bashing me in from all sides and, despite what I thought were some very encouraging moves on my part, he had reduced me to a small pile of limbs on the floor after not very long at all. Later, I even teamed up with a friend against Tam but we still lost. I prefer beating up my friend.

The race against the clock to kick and punch enough points out of the adversary has its moments but *Blood Sport* isn't really exciting enough. If it weren't for the fact it only costs £15 I would recommend avoiding it. Also, for a game so small I do not expect the battery-backed Ram in my 2Mb computer to be tinkered with. After I'd played enough, *Blood Sport* told me it had altered a few things and I 'might need to reset' my computer.

Sam Greenhill



Obviously not getting to terms with the best-of-the-best here

JAMES POND 2

ROBOCOD

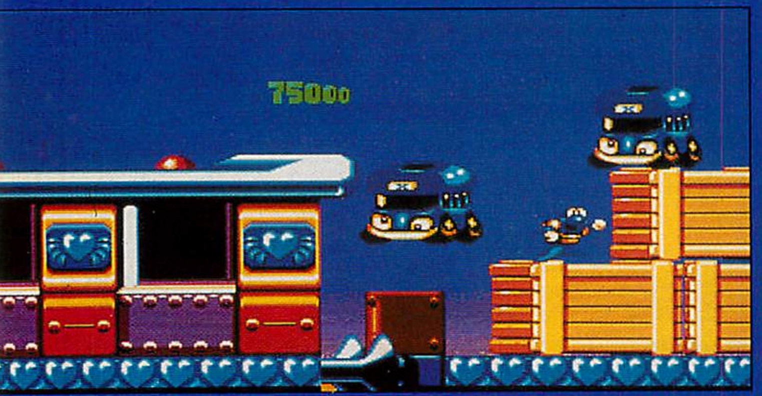


Robocod: licensed to brill

Supplier: Gamesware
Telephone: (0703) 456523
Price: £25.99

The world is in terrible danger yet again, and yet again only that old smoothie, the formidable James Pond, agent of FI5H, can save it.

The warped Doctor Maybe has highjacked Santa's entire stock of toys, his entire factory even, and the prospect of a toyless Christmas is making world leaders quail. After all, think of the prospects for civil disorder as civilisation goes down under a tide of rioting six-year-olds. Worse, the villain has mutated the toys into all-out killing machines. Can our planet be saved?



Not so much Powermonger as fishmonger

Yes, because our hero is here. JP may look, erm, like a fish out of water, but he is equipped with his amazing Expandasuit, with the help of which he should be able to negotiate the subverted toy factory and get everything back to normal. He'll need all the help he can get, as toy trains try to run him down, homicidal playing cards leap out of the woodwork and pits of snakes lie in wait.

Even if you haven't played *James Pond 1*, you may have guessed this is a platform game with a vengeance. Pond can run, stroll and jump with the best of them, but there is one unique feature: Joystick Up stretches our hero so he can reach the ceiling. He then shuffles hand over hand, sorry, fin over fin, until he reaches safety. Nasties are topped by repeatedly jumping on them.

Power-ups there are too, in plenty. Besides the batteries, which give JP's suit extra life, look for bullet-proof armour, wing attachments for those tricky bits, extra lives and umbrellas to ease nasty falls.

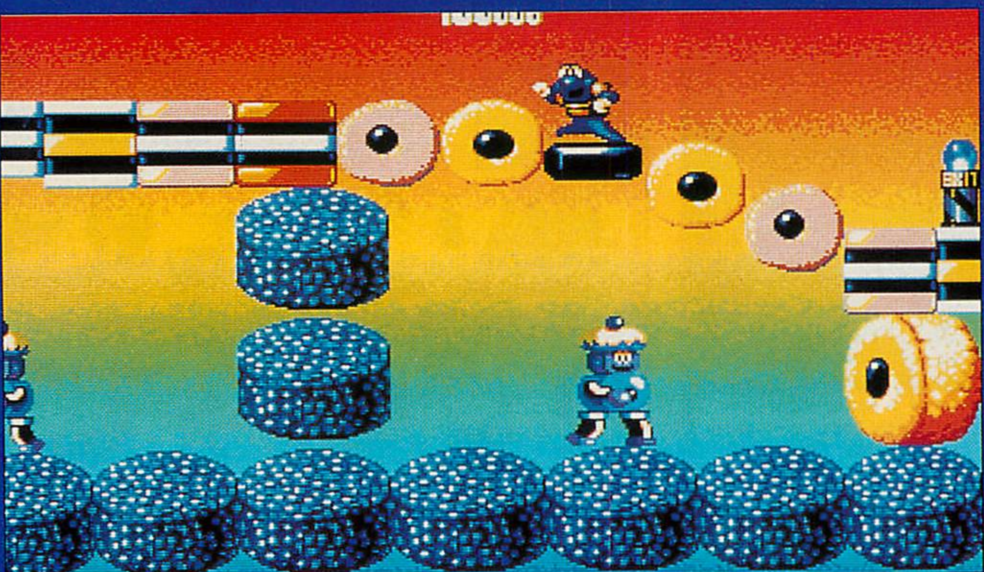
Santa's factory is suitably large, and at the start of the game you only have access to two of the rooms. To get access to the rest, you need to solve levels one-by-one. Hint to software houses: isn't it about time you included a game save option as standard – it gets boring repeating levels. Each level has its own theme, with level three smacking a little of *Zool* with lots of homicidal chockies, including Penguin bars, floating around. Is this one of the earliest examples of product placement in a computer game?

Robocod 2 looks less like *Zool* than a cuter version of *Sonic*. Before you know it, those zany backgrounds have started, scrolling all over the place until you get cross-eyed.

Released with perfect seasonal timing (it was last year's Christmas theme game on the Amiga) it exudes endless cuteness. That doesn't make it easy, however, and by the second level you may find you have your joystick in a death grip. It can't be faulted for addictiveness, but after a while the tweeness of the proceedings will get to everyone over the age of six. You just long for a bazooka to take down those stupid snowmen.

Still, if you're in the right age group, or have just suffered major age regression due to an excess of Christmas cheer, you may just love this game to death. There are, of course, no fish puns in this review – there's a plaice for everything.

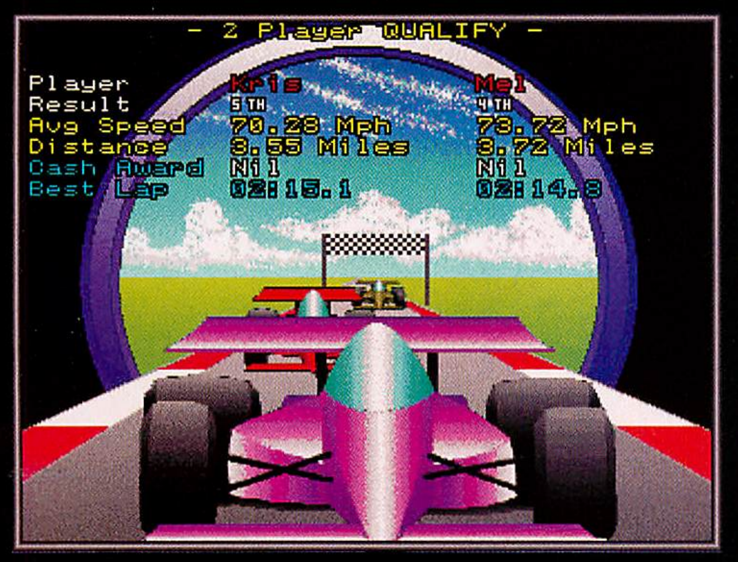
Fin (yes really) Fahey



Nothing to carp about with this one, you'll be hooked and have a whale of a time... Okay, that's enough fish puns

Stunt Racer 2000

'A game ahead of its time!'













The creators of *Chocks Away* are proud to present *Stunt Racer* 2000.

The year is 2037 and the world of motor sport has changed considerably to meet the demands of the excitement thirsty audiences. The World Federation Entertainments Network (Known as Fednet or WFE) broadcast Stunt Racer 2000 to a worldwide audience of over 750 million. Those who are brave enough to race can reap the rewards of stardom, wealth, fame and glory or be lost amongst the mass of failed Stunt Racer 2000 drivers. The racing season takes place on 16 demanding tracks over all terrains including desert, arctic and lunar tracks featuring a wide selection of jumps and stunts. After completion of all 16 tracks the top drivers will get to race on the Supreme Stunt Racer 2000 track which is the ultimate test of driving skill.

Stunt Racer 2000 has been carefully developed by the Fednet team over the last year and includes all the best features from other racing games and many innovative new features. The game is designed to be pseudo technical whilst keeping the easy to play arcade feel.

GAME FEATURES INCLUDE:

- Fast solid 3D vector graphic with a large selection of viewing angles and track side cameras.
- Lots of sampled sound effects and plenty of in-game music.
- Two-player split-screen or serial link options.
- Easy to use icon driven menu system to select the many features.
- 'Practice', 'Qualify' and 'Race' on a total of 19 varied and demanding tracks over 60 miles in length.
- Review your performance with the excellent replay feature.
- Vast selection of track pieces including Bank Corners, Various Jumps and Bumps, Moving 'Surf Track, 360 Degree Loops, Raised Sections, Track Hammers, Wave Bridges, Twister Jumps, Transporter Gates, Car Lifts and Acceleration Gates to mention but a few.
- Cash awards for winning races allowing you to increase your cars performance by buying Extra Tyre Grip, Increased Engine Power, Nitro, Mega Boosts and Car Scanners.
- Selectable gear ratios allowing you to fine tune your cars performance to suit the varied tracks.
- All player and computer controlled cars are accurately modelled using sophisticated alogrithms to calculate skidding, collisions, gravity, acceleration etc.
- Two player 'Killer' – destroy your opponent on specially designed tracks. Save player files and game configuration onto disc.

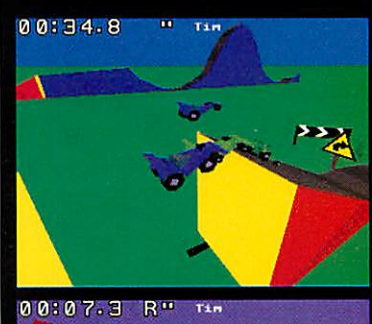
FedNet 25436 - 32

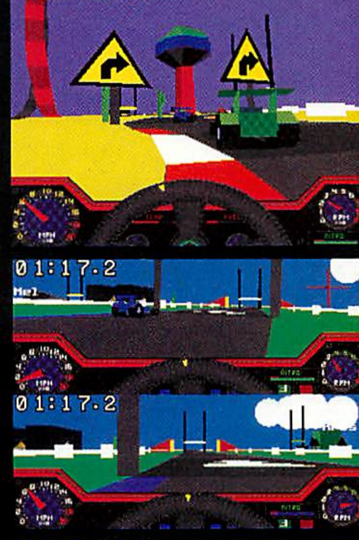
WFE

World Federation Entertainments Network

PG STUNT RACER 2000







For All 32-bit Acorn Risc Machines
Requires 1 Megabytes £34.95

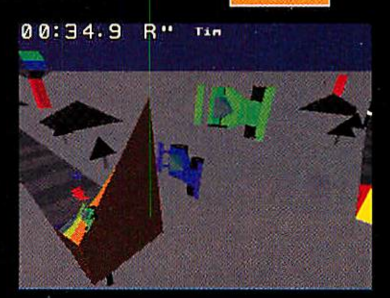
The Fourth Dimension, 1 Percy Street, Sheffield, S3 8AU
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VISA









Birds of War

'FIGHTER PILOTS WANTED – YOUR COUNTRY NEEDS YOU!'

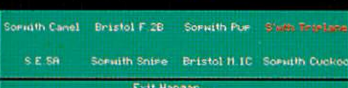








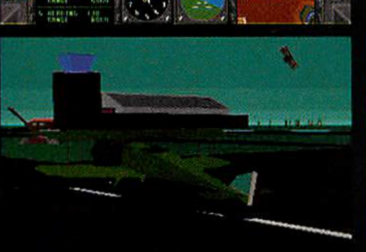












It has taken **four years** of dedicated work by the author ***John Whigham,*** to make a flight simulator so sophisticated, it could probably be used by the forces . . . It's name is **BIRDS OF WAR**

TECHNICAL:

- Memory Required: 2Mb
- Amount of Static Graphics: 1.2Mb
- Amount of Mission Map Graphics: 1.4Mb
- No. of 3D Objects: Over 250
- Fast 3D Vector Graphics, up to *20 fps*
- Minimum configuration 2Mb – Arm 2 Ideal configuration 2Mb, Hard drive, Arm 3
- Total Amount of Data: Over ***10Mb*** Compressed onto six discs
- Briefing/Debriefing text: Over *86,000 words.*

GAMEPLAY:

- No. of Planes You can Fly: 32
- No. of Aircraft Types: Over 50 including Helicopters
- No. of Eras: 4
- No. of Campaigns (areas): 24
- No. of Missions: 192
- Total Playing Area: 250,000 Square Kilometers *(down to accuracy of 1cm)*
- No. of Weapon Types: Over 40

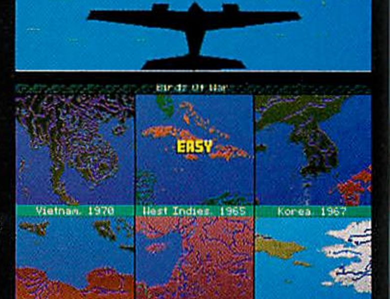
OTHER FEATURES:

- Variable Detail Level
- Graduated Horizon
- Two Accelerated Time Modes
- Digitised Sound Effects
- Variable Enemy Skill Level
- Variable Landing Difficulty
- Full ***'Black Box'*** Flight Replay With Save Facility
- Low Visability Cloud Base Feature
- Object Depth Cueing
- 14 Different View Points, with Variable Pan Speed and Zoom, including internal or external views
- Missions may be in daylight or darkness
- Intelligent Computer Controlled Enemy Pilots – NOT Just Drones
- Wide Variety of Mission Types – Interdiction, Escort, Photo Recon, Air Drop, Retrieval, Air Interception, Ground Interception
- Fly Missions in various weather – Snow, Rain, Thunder, Sandstorms
- Up to ten pilots on roster – pilots can be carried through from one campaign to the next
- Realistic flight models capable of full aerobatics
- Full Mission briefing/debriefing sequences
- Interactive intelligence map for each Mission
- Select which Plane to Fly and Choose Your Own Ordinance

For All 32-bit Acorn Risc Machines
Requires 2 Megabytes £34.95

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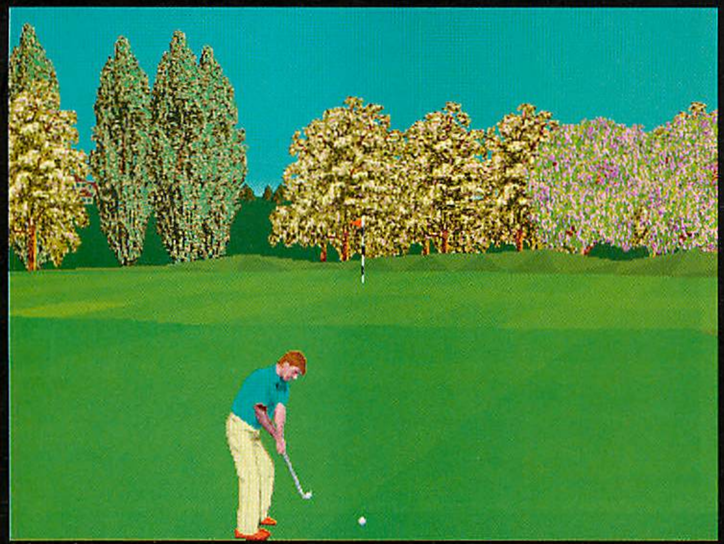
VISA   Access

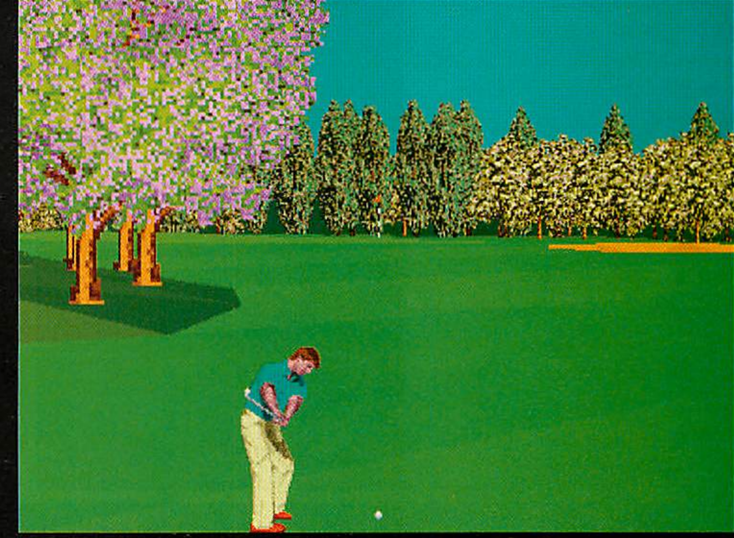






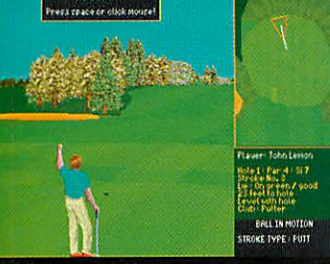


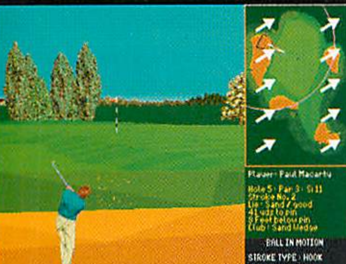


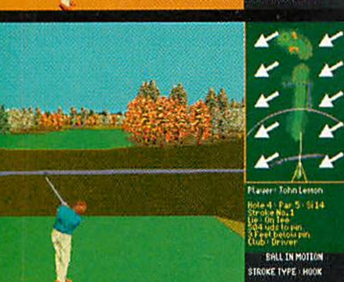




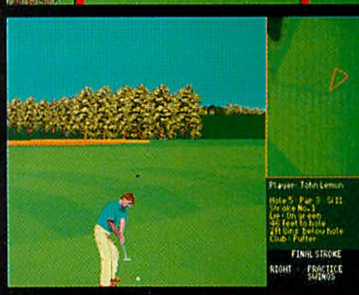


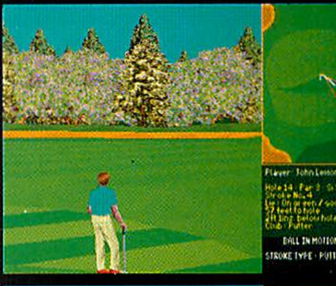




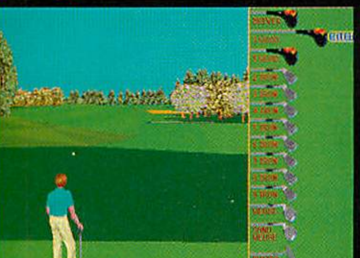


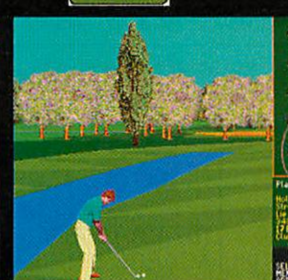

LEADER BOARD



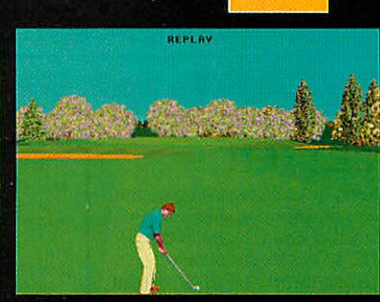


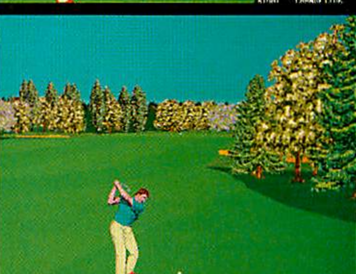






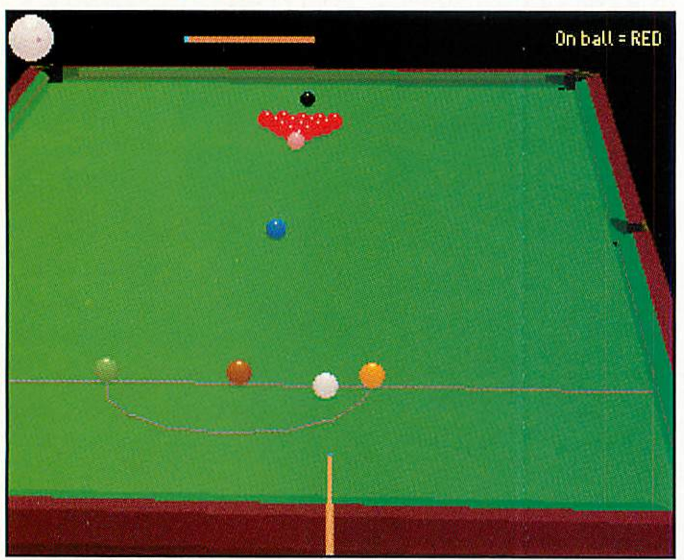


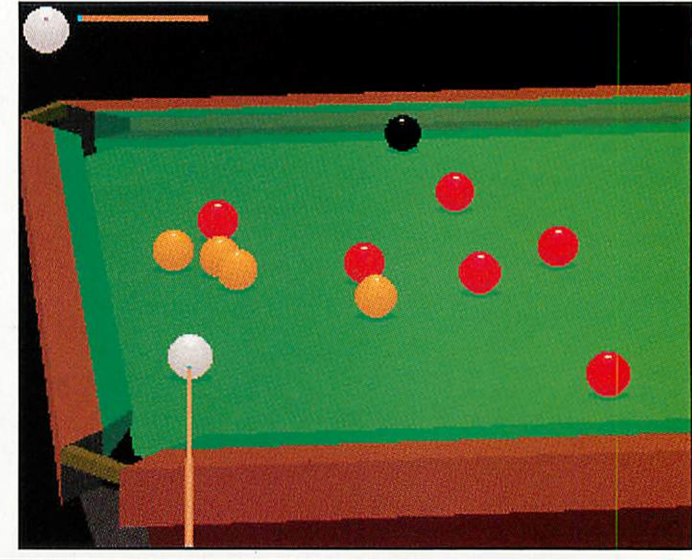

REPLAY



BBC A3000 / ARCHIMEDES /BBC A3000 / ARCHIMEDES /BBC A3000 / ARCHIMEDES

Break 147 & Superpool

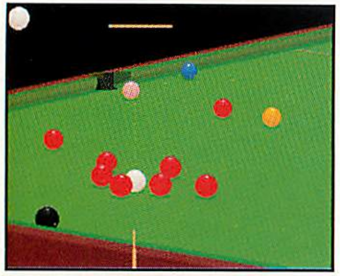


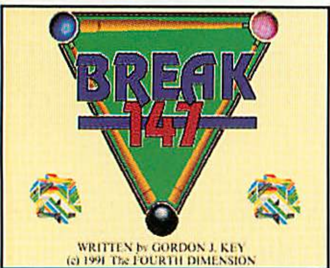


"Snooker & Pool Simulator Par Excellence"









'BREAK 147' and 'SUPERPOOL' are game simulations in the true sense of the word. Gone are the power meters and fixed screw and side settings of inferior simulations and in comes a cue driven by reality software.

As in the real thing your grip on the butt of the cue (represented by the mouse), the smoothness and power of your cue action and the way in which you follow through with a shot, are all deciding factors in whether a pot is successful and whether you will retain position for the next ball. The only thing that is missing is the smokey air and a pint of beer on the edge of the table, these you will have to provide for yourself!

In both games you can choose to play on a practice table where anything goes. You can position balls wherever you wish so that you can improve your potting and positional play. You can even undo unsuccessful shots so that you can try them again. When you make that incredibly fine clip into a pocket or miss by the merest fraction, you can watch an action replay of the shot from any angle so that you can either gloat or see where you made that tiny mistake that let you down.

When you feel that you are up to the task you can play a single match against a friend or against one of the sixteen computer players. Should you feel lazy you can just sit and watch whilst two computer players battle it out between themselves. Alternatively you can enter a tournament where you will have to fight your way through the preliminary rounds and on to the coveted Final.

Whilst you are playing a match or in a tournament the game will be overseen by the referee. If in snooker you are 'on' a colour as in real life the referee will indicate the ball to you that he thinks you are going for and it is up to you to let him know if he is wrong. The referee will also call when a freeball is to be given, if there is a touching ball and your score after each successful shot.

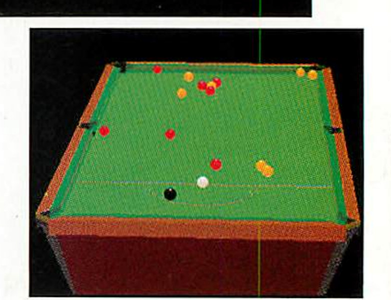


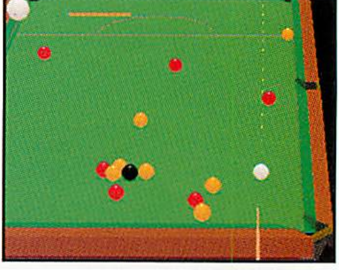
SPECIFICATIONS

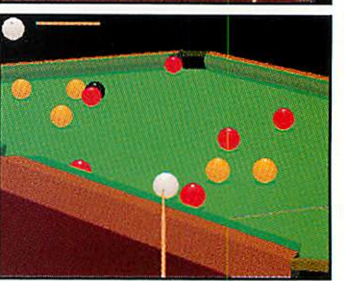
256 colour MODE 13 graphics optimized for maximum speed
225k of machine code
Over 147k of high quality sampled speech and sound effects
Ball plotting accuracy of +-0.05 of an inch on a 12 foot table
Cue butt controlled by the Mouse
Bridge hand controlled by Keyboard

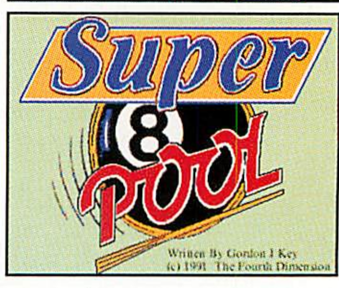
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"Break 147 & Superpool" is compatible with the BBC A3000 and 310 & 400 Series









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Enter The Realm





"A Superfast Adventure into Arcade Action"





Combining fast arcade quality action and graphics with the element of adventure and surprise. Meet strange characters, build up your weapons and eventually meet evil in mortal combat.

The Background

Travel back to Karidor, a land lost in antiquity. A land of evil, a land of good. A land where almost anything can happen and probably will. A land of magic and a land of beauty. So your quest begins.....

The land of Karidor was a quiet world much like Earth. It had mountains, it had seas. It had forests and it had deserts. Even the people were similar, but one thing was different. This was the fact that magic did exist there.

For many aeons the land was untroubled by any great power until one fateful day where everything changed and evil took control. Evil had always existed of course, but had been in balance with the good of the gods, who were neutral. That day however, the balance was tipped.

It turned out that the ancient prophecies of Karidor had proclaimed this event thousands of years ago. The prophecy stated that evil would overthrow the Realm and only one man, a knight of goodly heart and fearsome ability could reset the balance again. The knight was named Kharas.

Enter the Realm challenges you to lead Kharas in his conquest against evil. On the way, dangers will befall you and surprises will await you...



The Game Design

Enter the Realm is the first game to feature true parallax scrolling on the Archimedes and A3000 computers. The whole play area is created from layers which slide over each other creating a true 3 dimensional backdrop upon which the game proceeds.

The game features fast spectacular graphics which are all hand drawn and realistic digitised sound effects and speech which are totally interactive with the action all around you. Everything else in the game will be left as a suprise!

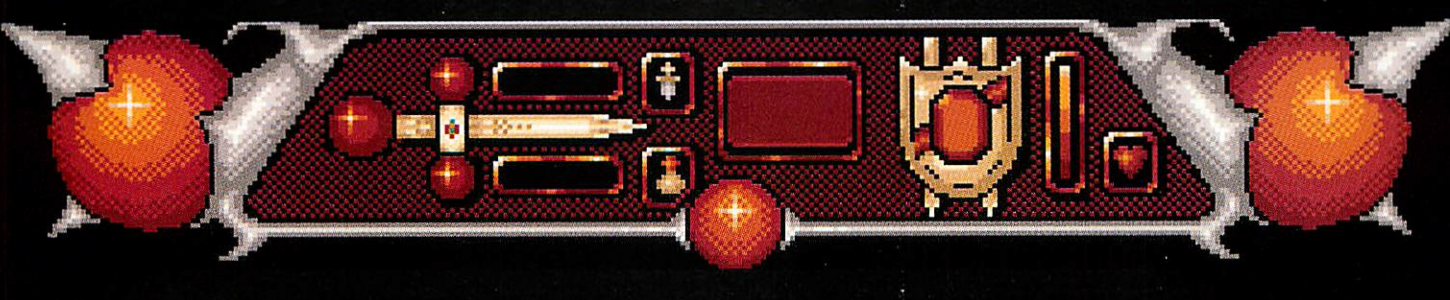
Specifications

Over 2 megs of high quality realistic graphics, all hand drawn.
Over 130k of in-game digitised sound effects and speech.
Over 150k of music by Peter Gillet.
50 frames per second arcade quality scrolling, animation and movement.
6 layer FULL parallax scrolling of play area (forget immitations!).
Massive sprites.
Realistic weather effects and intelligent adversaries.
Control via keyboard or RTFM joystick.



BBC A3000 & ARCHIMEDES PRICE £24.95

Enter The Realm is compatible with the BBC A3000 and ALL Archimedes computers



From the team of dedicated programmers who gave you *'Pandora's Box'* Comes The Sequel:

. . . 'Carnage Inc.'

'A Test of Honour and Courage'







From dazzling fire-fights to ingenious puzzles, Carnage Inc. will test your reflexes as much as your mind. Spanning 4 planets and over 200 screens this campaign will appeal to both warrior and sage.

BRIEFING:

In the year 2297 Earth comes under the control of an idealistic council which abolishes the use of weapons of war. When intelligence reports the presence of a hostile alien empire, a defenceless Earth is gripped by fear.

The council has no choice, it must commission Carnage Inc. led by the psychotic General De'ath, to fight on its behalf. Under this contract Carnage Inc. builds you:

A *Cyberkill Mk.III Battle Droid, 2.5m tall, titanium alloy and utterly deadly.*
Your Mission: To infiltrate, provocate and annihilate the enemy power.

GAMEPLAY:

Your battle droid will use grenades, flame-throwers, land mines and laser guns to penetrate enemy defences.

Engaged in espionage you deal with spies, cut communications, demolish genetic warfare labs, and ultimately destroy the alien space station.

. . . or die in the attempt!

TECHNICAL INFORMATION:

Frame Rate: 25fps
Graphics:
Enhanced Panametric System Allows Detailed Landscape and Rapid Arcade Action
Sound: Digitally Sampled Sound Effects
Computer: Any Archimedes with RISC OS 2+ and 1Mb
Enhanced sound effects on 2Mb Machines

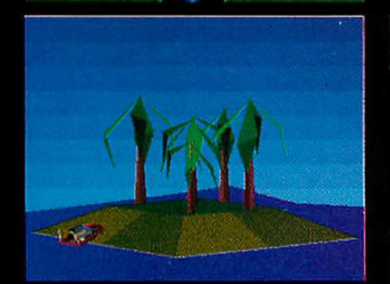
For All 32-bit Acorn Risc Machines
Requires 1 Megabyte £25.95

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E-Type



'The All-Time Classic Car. The All-Time Classic Game.'

The E-Type Compendium includes:

The Original E-Type game

Take control of £70,000's worth of gleaming 'E-Type' and head off for the drive of a lifetime. Hear the digitised roar of the 5.3 litre 12 cylinder engine as you tear along lanes, roads and motorways at speeds over 150 m.p.h.

'E-Type' takes racing simulations into the world of 32 bit RISC processing to bring you a game of a quality that is not often found even in the arcades.

If you are new to car driving you can take the very easy to drive automatic for a spin but experienced drivers can optimise performance using the faster 5 speed manual.

There are hazards galore in the 5 varied scenarios including other cars, roadworks, pedestrians, trees, rocks, bushes, oil spills and many more.

E-Type Extra 100 Miles

This consists of 100 extra miles of very hilly and hazardous roads. They will test even the best drivers to the limit.

E-Type Designer

This highly advanced but simple to use designer allows you to design your own tracks. It is enormously flexible to produce an endless variety of tracks to challenge you and your friends.

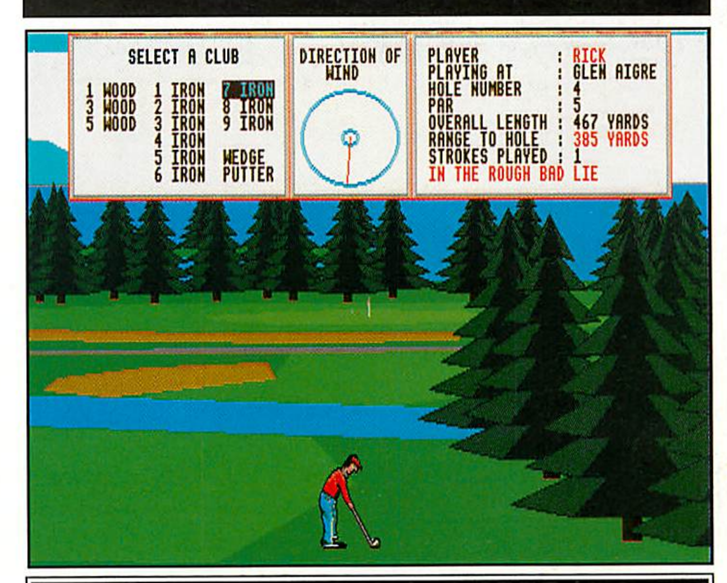
BBC A3000 & ARCHIMEDES PRICE £25.95

E-Type is compatible with RISC OS 2 +3 Acorn Machines





Holed Out



'An Incredibly Playable Golf Game for 1 to 6 Players.'

The Holed Out Compendium includes:

The Original Holed Out game

This superbly enhanced version really shows the power of the Archimedes at its best. The game is completely mouse driven and features atmospheric digitised sound effects to convince you that you are really playing golf.

- 1 to 6 players.
- 2 contrasting 18 hole courses.
- 4 skill levels for beginner to professional. Learn to play without worrying about the wind, bunkers or rough.
- Realistic ball flight paths.
- Variable wind on each hole – every round is unique.
- Slice and hook capabilities.
- Full set of 14 clubs with accurately defined performances. You must consider your lie, the distance required, the wind conditions, the height required and the degree to which the ball will bounce and run along the ground.
- Bunkers, trees, water and variable rough.
- Constantly updated full scoreboard.
- Matchplay or strokeplay options.

Holed Out Extra Courses 1 & 2

These feature 4 extra 18 hole courses which have been meticulously created to test your golfing skills to the limit.

Holed Out Designer

Create your own courses with this easy to use yet highly sophisticated hole designer. Its flexibility allows you to define all aspects of the holes from their pars to the size, shape and position of the holes.

BBC A3000 & ARCHIMEDES PRICE £25.95

Holed Out is compatible with RISC OS 2 +3 Acorn Machines





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Pandora's Box





'State of The Art Arcade Adventure'

An intriguing blend of classic puzzles and full-blooded arcade action. Over 200 screens of stunning artwork and game play of the highest quality will appeal to the dedicated adventurer or arcade fanatic.

Prologue

Since ancient times a fastened box has symbolised the danger of our curiosity. This box has been opened and an entire kingdom has been poisoned by the evils unleashed.

The beast that lurked within is free and seeks the souls of men, possessing them and devouring them at will. Feeding upon misery, it profits by treachery and corruption, and in doing so brings the burden of its evils upon the land.

As the finest sorceror in the kingdom you must overcome the black magic and confine the curse once again to the only dungeon strong enough to contain such furious deparivity – *Pandora's Box.*

Quest

The powerful Panametric graphics system allows you to explore complex rooms and stunning landscapes whilst still having plenty in reserve to handle frenzied battles.

At first only armed with a keen wit you must acquire knowledge and magical weapons as the adventure gives way to arcade action. Exploring the length and breadth of the land you could conquer a world of magic or die in obscurity.

Technical Information

Frame Rate	25 FPS
Object Code	150k of Handwritten Arm Code
Graphics	Over 1000 sprites totalling 3Mb of graphics
	256 colour, mode 13 graphics
	Panametric graphics system
Sound	Digitally sampled sound effects

Reviews

'After 2 years of development and work of 4 programmers The 4th Dimension have released yet another blockbusting game.' *State of the Arc, Jan '92.*

'The graphics are wonderfully detailed and colourful, there is action, adventure, puzzles, intrigue and platform action. With Enter The Realm and now *Pandora's Box,* The Fourth Dimension is giving you the games you always knew your Archie could play . . . . *Simply marvellous.' Archimedes World, Feb '92.*

'Set in over 200 locations the game is big. There's enough here to keep even the most hardened adventurer busy for days on end . . . . I would rate it as the best arcade adventure around for Risc OS computers.' *Acorn User, Feb '92.*

'This is definately the best arcade adventure on the Archimedes. Fans of the genre will love it.' *Syracuse, Issue 5.*

For All Acorn 32-bit RISC Machines £25.95

Computers fitted with RISC OS 3 require 2Mb minimum

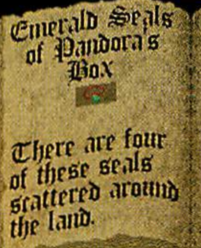












Collect the seals and place them next to Pandora's Box in the desert palace



Roll of Honour

Name	Score	Comment
Merlin	4400	Silly
Chris	1200	Tramp
Andrew	800	Leper
Stuart	400	Dung
Gordon	0	Smell

Awarded by arthur rex

Space to Play

ACORN / ARCHIMEDES / ACORN / ARCHIMEDES / ACORN / ARCHIMEDES / ACORN / ARCHIMEDES

CHOCKS AWAY



THE CHOCKS AWAY COMPENDIUM INCLUDES:

- Beautiful 256 colour graphics and 'nerve shattering' digitised sound effects.
- Easy to fly, yet highly manoeuvrable bi-plane – ideal for all ages/skill levels.
- Revolutionary 2 Player Option using split screen display. This allows 2 players to each fly their own planes simultaneously in practice, dogfights or missions.
- Full joystick, dual joysticks, mouse and keyboard control options.
- Amazing 'Black Box Flight Recorder' included so that you can record your own flights and then save and replay them. 90 minutes of totally absorbing pre-recorded training flights are included with the game.
- Internal/External views of your plane can be selected from front/rear/left/right.
- Powerful 30mm cannon capable of very rapid fire and long range destruction.
- Easy to read instrument panel and simple controls.
- 3 very varied immense maps to explore – approximately 18000 km^2 in total.
- 20 fascinating and varied missions of increasing complexity are included with a promotion system from Cadet right through to Marshal of the RAF.
- Superb range of targets/enemies including bombers, triplanes, fighters, tanks, control towers, anti-aircraft guns, headquarters and patrol boats.

PLUS CHOCKS AWAY EXTRA MISSIONS

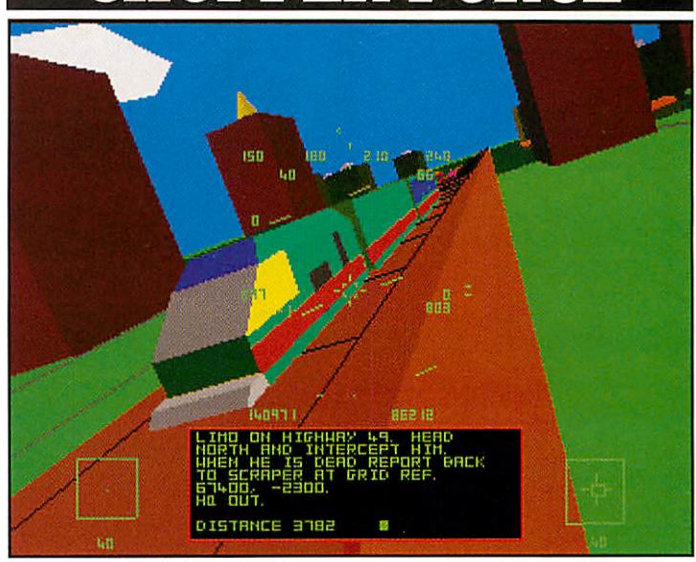
- 16 new & detailed maps based over land & sea.
- 20 enemy planes and 20 enemy targets are included in each mission. Over 1000 extra targets and planes have been carefully defined.
- Considerably improved action on all missions with plenty of targets to shoot at and plenty shooting at you.
- You can view the action from any of the enemy planes or targets and your own control tower at any time even while still controlling your own plane or watching a saved flight. There is a selection of tracking cameras (with adjustable zoom lenses!) around the playing arena. In addition a phantom plane can also be selected to follow the action on any of your black box flight recordings.
- Improved enemy pilots capable of performing loops, rolls, stall turns etc. All enemy planes are carefully modelled using the same equations controlling your own plane. This ensures both an accurate and fair simulation.
- More enemy planes and targets to shoot including: Three Engine Fighters, Enormous Cargo Planes, Airships, Barrage Balloons, Gun Boats, Oil Tankers, Trains etc.
- Six reconnaissance missions where you are required to take photos of various installations with your new on board camera.
- Improved graphics over the 16 maps including Complex Cities, Houses, Railways, Roads, Rivers, Bridges, Lamposts, Railway Stations, Oil Rigs, Piers, Beachs etc. to mention but a few. In total over 100 different graphics have been defined.
- Serial Port Link Up option so that you can link up 2 BBC A3000 or Archimedes computers and 2 pilots can fly simultaneously in full screen mode.
- Extensive enemy flak guns and improved enemy plane guns help make the new missions both more interesting and challenging to say the least!
- Improved digitised sound effects plus, of course, all the extensive options which are available with the original Chocks Away.

For All 32-bit Acorn Risc Machines
Requires 2 Megabytes £34.95





CHOPPER FORCE



A SUPERFAST ACTION-PACKED CHOPPER 'SIM'

Superb 3D graphics, stunning sound effects and rivetting gameplay combine in this futuristic helicopter simulation. The Chopper Force is an elite band of police helicopter pilots set up to combat the modern terrorist.

ADVANCED HELICOPTER TECHNOLOGY

Gone are the old-fashioned dials and indicator LEDs of 20th century technology. Instead a sophisticated head-up display and a wide-screen monitor are provided. The monitor brings all relevant information straight to the attention of the pilot – saving the constant scanning of dials and indicators. The helicopter is equipped with powerful retro-rockets which when activated give it much more of the power and speed of a jet. With the retros off the full manoeuvrability of the helicopter becomes available. Landing on skyscrapers and lifting equipment with a rope becomes possible.

RANKING SYSTEM

As you climb through the ranks extra equipment will become available. You will also gain privileges such as access to satellite surveillance. Ranking credits will be given for destroying any terrorists that are about when you do your mission as well as for achieving specific objectives.

Ranking debits are given for friendly-fire or civilian casualties that you may cause. To improve your rank you may redo a mission to try and get those terrorists that were missed the first time. Each player has his/her own personal file protected by a password that records what you have achieved so far.

LARGE MAP

The whole game takes place in one gigantic arena with a superb variety of buildings, roads, rivers and other objects. There are over 20 fascinating and varied missions that will test even the most experienced flight simulator fans.

STUNNING SOUND

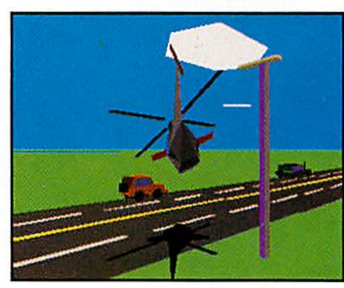
A large variety of samples have been recorded at a high quality sample rate. The doppler effect is fully implemented just as it would really sound. The volume is correctly calculated using the inverse square law.

SUPERB GRAPHICS

More polygons than ever before are seen at a smooth frame rate. And yet the vector code is extremely flexible, allowing views from EVERY conceivable angle which is made use of with an impressive list of view/tracking facilities.

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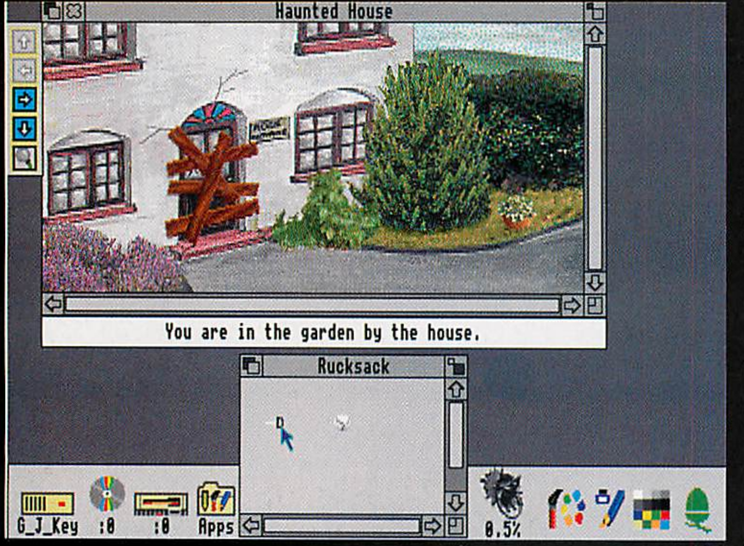
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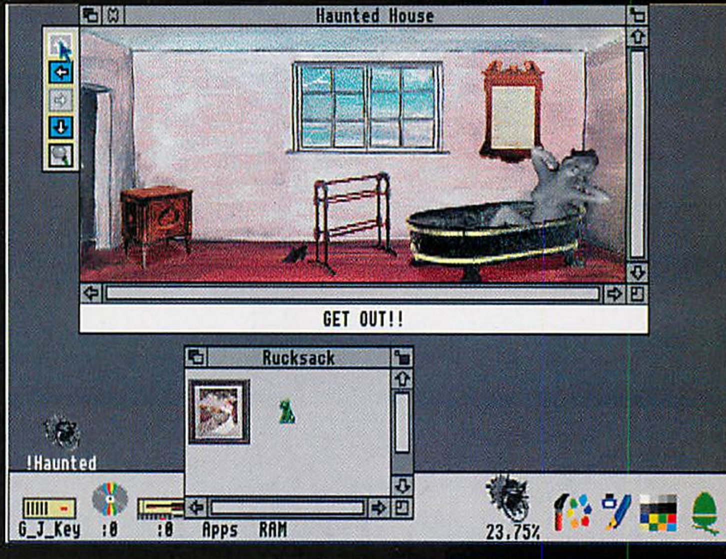
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Haunted House













The dawn breaks onto a fine autumn morning as you slowly drive into the tiny village of Lower Pigglesthorp and make your way to the old house in Hobbs Lane. After parking your van to the rear of the building as you were instructed, you walk the remaining couple of dozen yards to the front gate, breathing the chill of the morning dew. The road is quiet and deserted save for a couple of blackbirds and the crow of a distant cockerel, *'it's going to be a good day'* you say to yourself . . .

In all the years that you have been doing house clearances this one does seem a little strange. Your client flatly refused to come with you, insisting that you would find everything that you would need on the premises. All he would tell you, was that the building had apparently been empty for some years and that there was a small fortune in antiques and collectables to be taken back to the auction rooms.
He didn't even give you a key to the front door!

***Oh!* there was some talk of ghosts but that's silly isn't it!**

-----oo-----

SPECIFICATION:

- Minimum 2Mb RAM Required
- Contains over 1.5 Mb of Sprites
- 99.5% of Graphics are Scanned
- ARM 3 Enhancements
- Has over 50 Different Sampled Sounds
- Fully RISC OS Compliant
- Full Save Facility Allowing Progress to be Recorded
- 2 Discs
- Animated Graphics to add to the Ambience
- Hard Disc Compatible
- Deliberative Lateral Thinking required for the often Humorous and Teasing Puzzles
- Percentage Completed Indicator – ***Can You Reach 100%?***

For All 32-bit Acorn Risc Machines
Requires 2 Megabytes £25.95

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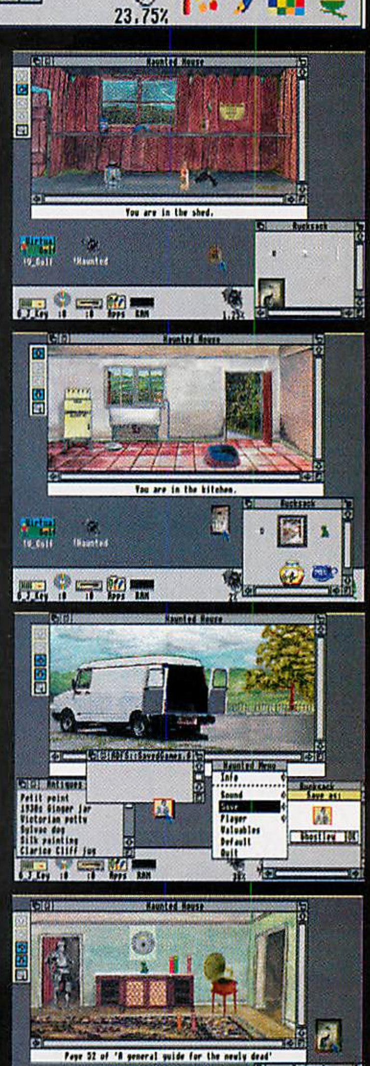




VISA







PRODUCED by The Fourth Dimension .... THE Acorn Games Specialists

Saloon Cars DELUXE





The Improved Driving "Game-ulation"!





UPGRADE for ½ PRICE Only £17.50

This new improved DELUXE version of *Saloon Cars* includes many new features suitable for upgraded machines and A5000s, plus many new features suitable for all machines......

REAR-VIEW MIRROR

Improved rear-view mirror.
Improved improved rear-view mirror suitable for Arm3 users.

COMPATIBILITY

Compatible with Course disc to be released soon (see below).
Compatible with Formula 1 upgrade to be released in response to demand for a decent Formula 1 simulation on the Archimedes (hopefully late 1992).
Compatible with Saved Players from ***Saloon Cars v1.0***.

GRAPHICS

New car graphics, featuring the most sophisticated vector graphics ever seen in a home computer game, allowing full 3D rotations of cars - other cars can actually spin off the track in front of you.
More realistic crashes, allowing other cars to have smash-ups almost as spectacular as your own (2MByte only).
Gameplay has been enhanced immeasurably by the addition of a completely new loading screen.

COURSES

New practice course (Test Track), easier (less hard) to stagger round than the old one.
Even more detailed and realistic features on most courses.
Detailed and Fast modes on some courses to allow use of the full potential of the Arm3 without compromising Arm2 users.

BORING TECHNICAL JARGON

Can be installed onto and run from Hard Disc.
Features minor refinements to the more anomalous features of the original ***Saloon Cars v1.0***. (Most of the bugs have been fixed!).
Unique integration process allowing speed variations in processing to maintain the highest possible frame rate at all times whilst maintaining perfect real time simulation of the race. (The game doesn't slow down when the graphics do!).
Special mode for machines with more memory which uses the extra capacity to enhance the speed and complexity of the graphics.

AND FINALLY

Many more features which we want to be a surprise.
Probably a few more features we haven't even thought of yet, and....a few we didn't think up at all.

OLD FEATURES

Saloon Cars DELUXE still...
does not provide a realistic simulation of a full time office job,
does not make the coffee,
and it still isn't quite as good as actually going out for a drive in a Sierra Cosworth.

OLD REVIEWS OF *SALOON CARS v1.0*

"***Saloon Cars*** is the definitive racing game. It is pure, unadulterated fun." ***Archimedes World '91.***
"Make no mistake: the speed and smoothness of this game has to be seen to believed." ***Syracuse '91.***
"...you cannot help but be astounded at the gameplay." ***Club A3000 '91.***

Acorn A3000, A5000 & Archimedes Price £34.95

To upgrade simply return the whole original *Saloon Cars* directly to us plus payment. We'll send you the newly packaged / enhanced 3 disc DELUXE version on release.



SALOON CARS DELUXE COURSES

The new *DELUXE* version still contains the 2 real courses, Silverstone and Brands Hatch, plus a newly designed wide practice course called Test Track ideal for beginners.

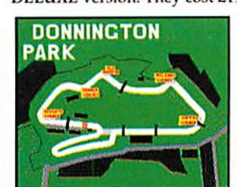


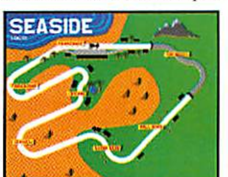


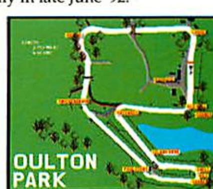


SALOON CARS EXTRA COURSES

This new Course disc contains 3 superb new courses which are only compatible with the new *DELUXE* version. They cost £19.95 and will be released hopefully in late June '92.

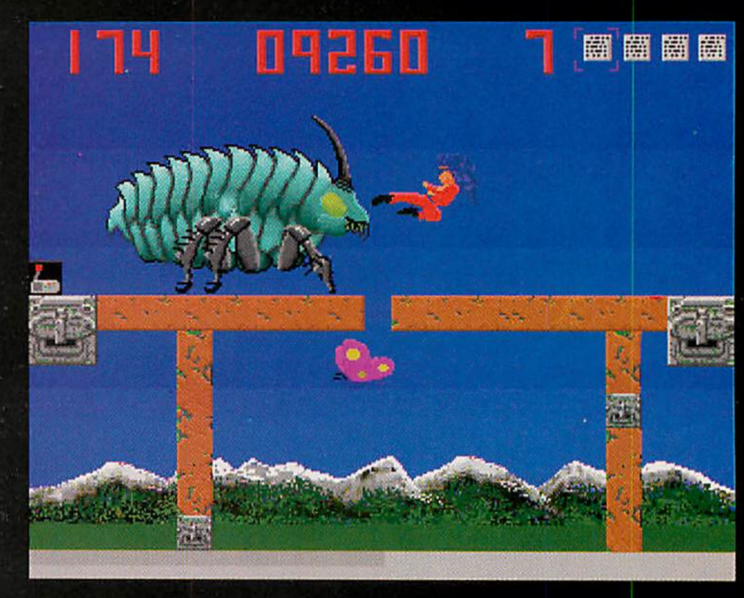






The Exotic Adventures of Sylvia Layne





The Exotic Adventures of Sylvia Layne

SCENARIO:

. . . Incoming Message for URGENT attention of Sylvia Layne! . . .

The brilliant and mad Greek Geneticist, Marcus Mousacca, has been kidnapped by the terrorist organisation, POLAR (*Peoples Organisation for the Liberation of the Animal Race*) not to be confused with SOLAR (*Society of Organised Liberals and Animal Racers*). It is believed that he was on the brink of a major breakthrough, the exact nature of which is unknown. However, it is believed it may have concerned the mixing of various animal genes, in particular sheep and kangaroos, in an attempt to create a 'woolly jumper'.

Your mission is to find the exact whereabouts of the professor before any harm can befall him.

Other agents have been able to track his enforced progress across central America and we believe that the cunning academic may have left valuable clues, in the form of hastily scrawled maps which lead to his current position, at key sites during his travels. Your mission then, is to visit each of the following locations and recover all the fragments of the maps:

- *Aztec Temples in the Andes*
- *Construction Sites in New York*
- *The Houston Space Centre*

Once you have the information necessary to find the professor you must travel to that location forthwith.

All these locations are guarded by enemy agents and you will have to progress with extreme caution!

. . . GOOD LUCK, YOU WILL NEED IT!

Game Play

Three separate scenarios which can be played in any order.

Each scenario contains five separate levels.

Each level scrolls vertically over approximately seven screens in height and contains four major puzzles which are often interconnected, plus many sub puzzles. Four parts of the map are to be found in each level, giving a total of 60 parts to recover in the entire game and hundreds of puzzles to solve.

Once a level is completed play can recommence at the end of that level. Allowing late night/all night(!) puzzle solving, game playing sessions.

Puzzles take many forms including guiding bouncing/sliding widgets into appropriate targets. It sounds easy but believe us, it will have you scratching your heads and tearing your hair out!

At the end of each scenario is a large and mean end of scenario guardian whose job it is to finish off anyone lucky enough to get that far.

The game play is a carefully blended mixture of platform, puzzle solving strategy and combat. With the player jumping from platform to ladder to ground whilst kicking, punching and collecting things.

Players character can jump, duck, roll, somersault, kick and punch in virtually endless combinations.

Control is via keyboard or Joystick.

You will need genuine skill and intelligence to complete this game and also a little luck!

Technical:

Super smooth 50 frames per second arcade quality animation with 5 layers of vertically scrolling parallax.

Colourful and detailed 256 colour mode 13 graphics.

All sound effects sampled and played with custom voice drivers.

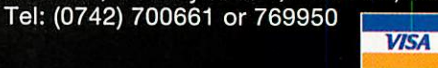
Can be installed on Hard Drive or Played Directly from Floppy.

For All 32-bit Acorn Risc Machines
Requires 1 Megabyte £25.95

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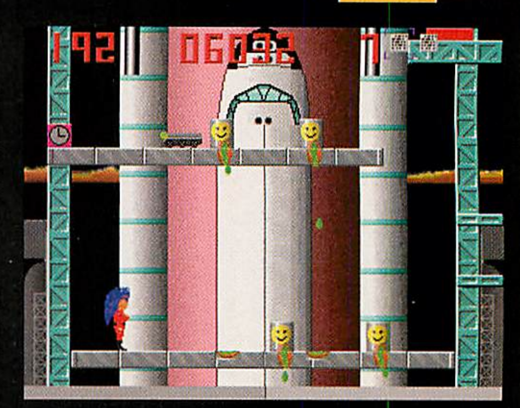


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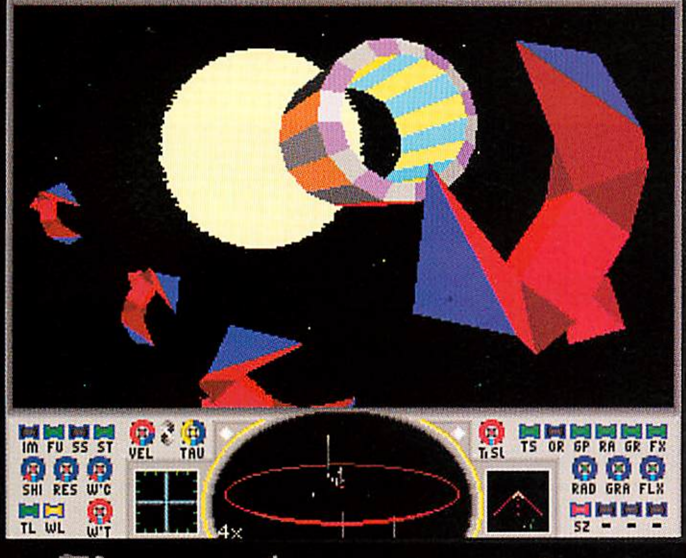
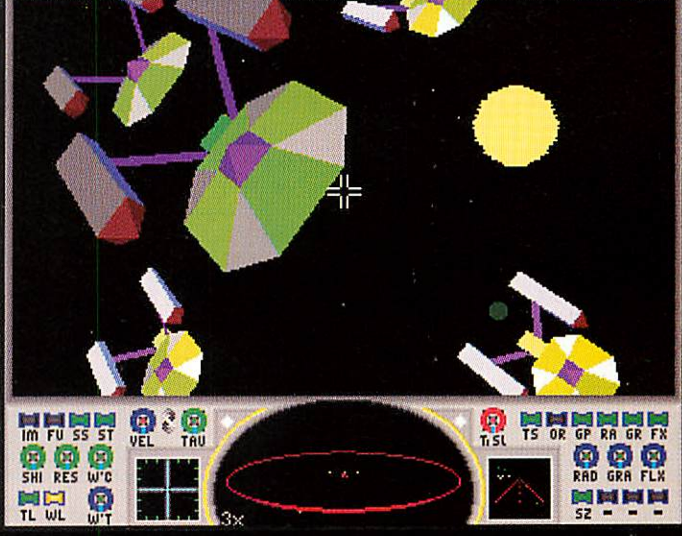








BLACK ANGEL

Let chaos rule with ultimate power

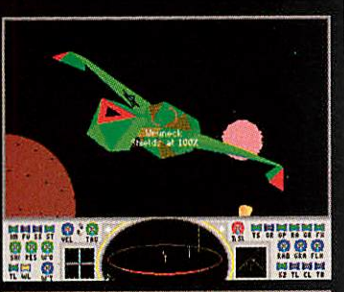



The Universe is old, very old, and your fourth generation galaxy is dying. Chaos rules with total power. There are no laws save those that nature imposes and any that you choose to impose upon yourself.

Evidence has been uncovered of an ancient civilization which may have inhabited a third generation galaxy. A civilization which seems to have beaten nature's limits of time and motion. A civilization which could travel faster than light. A civilization which may have outlived the death of its mother galaxy and which may even have had the power to leave the universe itself.

Of course very few people believe what can be read in the five billion year old religious scripts. They choose to believe that the Star Gates are a natural phenomenon, they choose to become extinct.

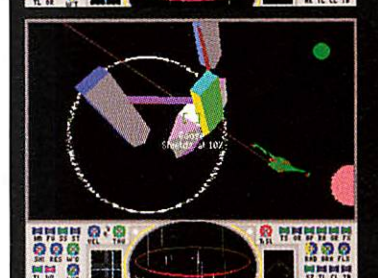
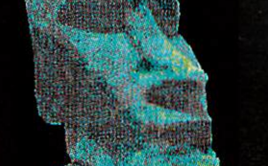
But you believe, you and a few others like you. Choosing to throw yourself into incredible debt in order purchase a second hand star fighter, you must now roam the galaxy searching for the parts to the key that will unlock the Star Gates. Though because this is real life and not some romantic tale, you will also need to earn a living to pay off your debts and maintain your ship. And don't forget the Tau Hoppers, those who take and do what they want, and if need be, use general relativity to escape into the future.




Your Ship:
Maan Industries Langhort Kestral

Drives	Twin gravitational displacement units (Super-string drives). Plus standard impulse and fusion units. All drives are fully linear in their operation.
Antidrive	Maan industries string tie.
Acceleration Rate	0-200,000 Kph in 17 seconds.
Terminal Velocity	.99999 C. achieved in 158 seconds.
Minimum Tau	.00447
Rest Mass (unloaded)	1.27 Tonnes.
Max Mass (unloaded)	283.98 Tonnes.
Hull Construction	.15mm vitrified magnesium sheet, atmospheric pressure supported.
Shielding	Electrostatic.
Fuel System	Interstellar hydrogen net with a 400ckm catchment field.
Weapons	6 universal weapons carrier pods fitted with 14Mw Gas lasers fitted as standard.
Weapons' Options	10Gw Plasma Beam. Absorption cannon (PAC). MUSPAC. Absorption torpedo (PAT). MUSPAT

All standard guidance equipment plus time displacement compatibility.


For All Acorn 32-bit RISC Machines Price £34.95

Including A3000, A5000 and all Archimedes - Release hopefully August '92

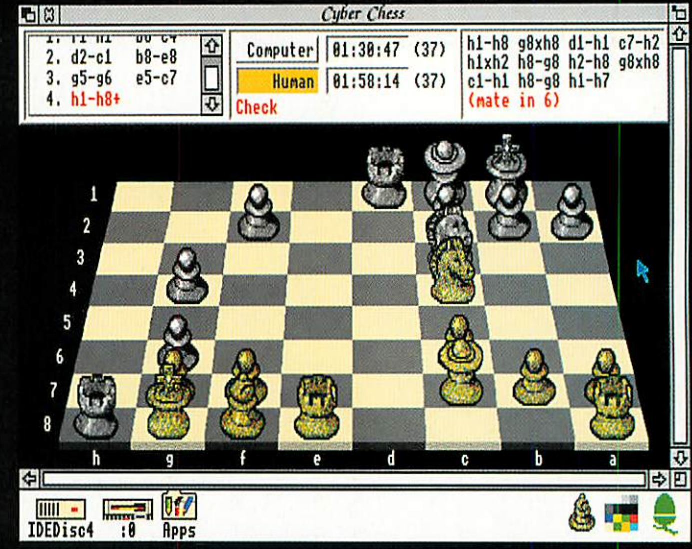
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PRODUCED by The Fourth Dimension .... THE Acorn Games Specialists

Cyber Chess





"The Definitive Chess-Playing Program"









Chess is probably the most popular game in human history. It has survived for fourteen centuries and is as successful today as ever. Thousands of people have dedicated their lives to its study and over ten thousand books have been published on its theory.

Now the Fourth Dimension is bringing the full magic of the game to Archimedes owners with its latest product, *Cyber Chess.* This represents one of the highest specification chess-playing programs available for ***any*** micro-computer. Over three sides of A4 paper is needed just to name the features present in the program. Some of its main points are:

SUPERB 3D SIMULATION

- A near complete 3D simulation of the game. Animation is used to move the pieces smoothly around the board; pieces are picked up and dragged by the human player to their new squares.
- Designed for total clarity. The board is carefully arranged so it can be played from without difficulty. A large alternative 2D view is also provided as an option.
- High-quality digitized stereo sound and speech.

RISC OS COMPLIANT

- Runs from the desktop in a window; fully multi-tasking and intuitive; follows the 3D style associated with high quality software.
- Multi-windowed. Any number of games can be opened and running from one incarnation of the program (within available memory). A sophisticated internal scheduling algorithm allows *Cyber Chess* to drive all computer opponents/games simultaneously whilst still smoothly multi-tasking with other desktop applications.

FIDE RULES

- Full implementation of all applicable chess laws, including en passant captures, underpromotions, 50/75 move rule etc. Even resignation and draw by agreement are supported.

HIGH SPEC MACHINES

- Optimised for an ARM2, mode 12 system. But takes full advantage of a faster processor or even extra RAM to produce a higher 'full strength' playing standard and smoother animation.
- Thoroughly tested with RISC OS 3; supports saving of the desktop.

BACKGROUND

- The publisher, The Fourth Dimension, is the premiere specialist games house for the Archimedes with a string of classics dating back several years. *Cyber Chess* represents the latest in superb 3D simulations following on from great best-selling successes such as ***Chocks Away, Saloon Cars*** and ***Break 147 & Superpool.***
- The author, William Tunstall-Pedoe, has been developing commercial software for Acorn machines for nearly ten years including several high-quality Archimedes products. He has a First Class Honours degree in Computer Science from Cambridge University and spent over a year studying computer chess research in order to produce *Cyber Chess.* This project is by far his most substantial yet and was designed from the beginning to be the definitive chess-playing program for RISC OS machines.

Acorn A3000, A5000 & Archimedes Price £49.95

Please ring for details regarding Site Licences

The Fourth Dimension, 1 Percy Street, Sheffield, S3 8AU Tel. (0742) 700661 or 769950

SUPPORT FOR BEGINNERS/CHILDREN

- You can learn chess from scratch using *Cyber Chess* with the tutorial supplied.
- 100 beginner levels are provided going from 0 (very very weak) to 99 (reasonably competent). This encourages beginners/school chess players to continue playing by not demoralising them and allows them to monitor their progress as they begin to beat higher levels. When they beat level 99 they can graduate to 'full strength' mode.
- Teaching option shows you which moves are legal as you play.
- If a player gets stuck a hint can be requested.
- The names of the openings can be announced as they are played quickly familiarising chess learners with the various opening systems.

SUPPORT FOR STRONGER PLAYERS

- State-of-the-art chess algorithm.
- *Cyber Chess* can perform analysis, giving the best line of play from the current position and an estimate of who is winning/losing and by how much.
- Full tournament time controls (e.g. "40 moves in 2 hours and then all remaining in 1 hour") can be set up. Time controls can be set for human players as well as computer opponents to simulate real tournament conditions.
- State-of-the-art opening book supports opening traps and advice. Multiple books are provided and new ones can be added or existing ones edited.
- Even the style of computer play (defensive, attacking etc.) can be adjusted to taste or to prepare for a match against a similar human opponent.

Demon's Lair

A brilliantly original isometric arcade adventure.















For centuries the land of Kaxiyo has been ruled by a friendly Dragon. Recently an evil Demon has captured the Dragon and imprisoned him in chains. You and the people of Kaxiyo are being terrorised by ghosts and other fiends making it deadly to go outside.

Food was running low so someone had to be chosen to destroy the Demon. The people chose their bravest and strongest warrior but he was soon killed, sapped of all life by the ghosts. Nobody dared go so it came down to drawing straws and you got the short one.

The quest beckons – find your way around the lair, solve the many problems (there are clues in these screenshots), meet the varied characters that await you, free the Dragon (he'll be pleased) and finally kill the Demon. You'll be the hero of the century if you succeed and ghostfood if you fail.

It's a game for all the family yet will challenge adventure enthusiasts – with entertaining animated characters, lots of tricky but logical puzzles and some good arcade action, the Demon's Lair is a superb game that will provide many hours of fun.



For All 32-bit Acorn Risc Machines
Requires 2 Megabytes £25.95

The Fourth Dimension, 1 Percy Street, Sheffield, S3 8AU
Tel: (0742) 700661 or 769950













THE DUNGEON





THE DUNGEON

Created by MARTIN DENNETT
with assistance from JOHN PARKER,
DAVID POSTLETHWAITE and GORDON KEY.

-o-

They had found the entrance, overgrown and carefully blocked up, near the top of a cliff, just as on the parchment . . .

. . . Without warning, the floor they had moved onto dropped almost imperceptibly downwards with a sharp click and gaping holes opened up in the path in front and behind them, leaving them stranded on a pillar of rock. Moroth cursed their stupidity at falling into such a trap, and at that very moment the floor under their feet also vanished and they tumbled and slid down and down, to land dazed in a heap on a wooden pad in a small room far below . . .

So easy to enter, so hard to leave. You will control the four adventurers as they spend days exploring their vast prison, gradually working their way upwards level by level, fighting off foul creatures without number, using cunning to evade and solve traps and puzzles designed to guard the wealth of the dungeon. Making the most of the objects you find including ancient spell scrolls and a deadly array of weaponry, you may eventually reach the hall where they fell into the first trap of the dungeon network, and so escape carrying as much treasure as you can.

THE DUNGEON *features*

STUNNINGLY SMOOTH AND REALISTIC, THREE-DIMENSIONAL, DEPTH SHADED GRAPHICS AT UP TO 12½ FRAMES PER SECOND.

•

TELEPORTERS, PADS, DOORS, PORTCULLISES, PITS, CHASMS, STAIRCASES, SECRET ROOMS AND MORE.

•

CHARACTERS WHOSE FIGHTING AND SPELL CASTING ABILITIES CAN BE BUILT UP PROGRESSIVELY.

•

SAVE GAME FACILITY.

•

STEREO SOUND EFFECTS.

•

FLUID MOUSE OR KEYBOARD CONTROLLED MOVEMENT.

•

WEAPONS, CLOTHING, ARMOUR, FOOD, DRINK, POTIONS, SCROLLS AND MUCH TREASURE.

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MACHINES WITH AN ARM3 PROCESSOR CAN SELECT AN ENHANCED MODE, GIVING ASTOUNDINGLY SMOOTH ANIMATION AT UP TO 25 FRAMES PER SECOND.

For All 32-bit Acorn Risc Machines
Requires 2 Megabytes £34.95

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IN BRIEF

We run the microscope over a handy and affordable compression program for the Arc and Apple's Risc-based pocket computer, as technology is cut down to size

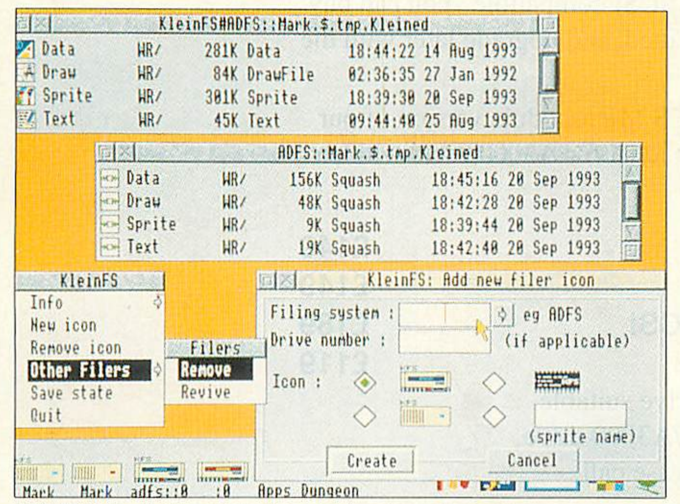
KLEIN FS

Supplier: PTW Software
Tel: (0329) 281930
Price: £17.95 including VAT and p&p

There are two main ways of compressing files on the Arc. The most common is to create an archive file, into which files are compressed. This can then be opened, like a directory, and files can be copied out. This is used by *ArcFS* and most of the archiving methods available in *SparkFS*.

The main advantage of this method is it compacts directory structures very well; the main disadvantage is that if you lose an archive file, you lose everything inside it.

The other method, that used by *Compression*, is to compress each file on the disc, but leave them as separate files. When this disc is accessed through the compression routine, it appears like a normal disc, but has a higher capacity. This is great, and it does not have the disaster potential of archive files. However, at £39 + VAT, *Compression* is very expensive and not particularly friendly to set up and use.



KleinFS makes both compression and decompression easy

This is where *KleinFS* comes in. *KleinFS* behaves like *Compression*, but instead of a proprietary compression system, it uses Acorn's *Squash* module, part of Risc OS 3. This means it is cheap, and that files compressed with *KleinFS* can be decompressed by anybody, without needing a public domain utility to do it for you.

The system is easy to set up: you just run it, and it installs icons for each drive available. A huge bonus is that you can turn off the normal disc icons for those with *KleinFS* equivalents, which makes the whole process easy: no longer do you have two icons per drive. You can add new drives, and *KleinFS* uses the scrap application for workspace: much more intuitive than manually setting a temporary directory.

Maybe it's unfair to compare *Compression* with *KleinFS*: the former is faster and has a slightly better compression ratio. However, on price and the fact that *KleinFS* is easier to use, as well as producing standard *Squash* files, I know which one I'd buy.

Mark Moxon

APPLE NEWTON

Supplier: Apple
Tel: (0800) 127753
Price: £649

A descendant of the Risc processors used by Acorn since 1985 is at the heart of Apple's revolutionary new pocket computer. But calling the Newton a mere 'computer' might cause some chagrin among Apple's Personal Interactive Electronics staff, the people who developed the Newton.

The Newton MessagePad uses a stylus and handwriting recognition instead of a keyboard to enter, store and retrieve information, notes and drawings and send them to other people. Apple's vision is a world organised by Personal Digital Assistants (PDAs).

A PDA uses artificial intelligence (AI) to understand users' commands, whether typed, written or, eventually, spoken. Once a command is entered the AI tries to interpret it, like command parsers in text adventure games.

On the MessagePad you can scribble 'Meet Julia at 6PM' and by tapping the plastic stylus on the Assist icon at the bottom of the screen up come your diary entries for today with a prompt to confirm you would like to enter a meeting reminder for Julia at 6pm.

Alternatively you could write 'fax Bill' and the note you're working on will be entered into a box with Bill's fax number, assuming his details are in your Newton address book. Hook up a modem and you're away.

A worldwide electronic mail system is being set up for Newton users and a pager-like cordless communications adapter is in the pipeline. An infra-red facility means you can beam messages to other Newton users.

Everyone wants to know how good the handwriting recognition is. It coped much better with joined up writing. The Newton adapts to your style and there is a training facility, but the user adapts to it too. After a week it coped with 70 per cent of words.

But is it worth it? That all depends on if you want to be in on a bit of computing history – the Newton MessagePad is a big part of the shape of things to come and a lot of fun to use.

Ian Burley

The Newton: eagerly awaited, but can it read your handwriting?



What price the future?

Demand for CD-Rom has run up against one big obstacle: the price of the hardware. Ian Burley looks at two systems aiming to bring the future within reach

With useful applications like *Genesis*, *Magpie* and others, demand for multi-media is growing in the Acorn world. Acorn's adoption of Kodak Photo CD standards is another attraction.

However, this demand has, been frustrated by the expense of hardware. Prices have dropped and both Morley and Cumana have put together competitively-priced systems.

Connecting a drive to an Arc has usually been via SCSI (Small Computer Systems Interface). Although it's versatile and performs well, SCSI is expensive. Both these use cheap, proprietary interfaces.

Morley has opted for a Sony mechanism for its Revolution drive and supplies the interface card as standard for £299 + VAT. Interfaces are available for eight-bit minipodule (A30xx/A4000) and 16-bit full-size podule Archimedes (A5000/4xx/3xx/540/R260).

The Sony has a modest specification: a single spin speed drive with 150K per second data transfer and track seek time of 490ms, a 64K buffer and multi-session capability for Photo CD.

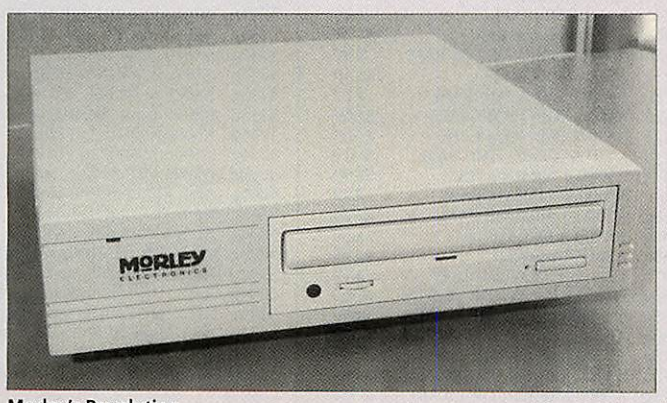
The internals of Cumana's SLCD 300 are by Panasonic and the drive is multi-session Photo CD compatible. This is a single and double spin speed drive, offering 300K per second data with a 64K buffer. Track access time is 320ms.

Cumana offers more options. The basic 339.57 + VAT (£399 inclusive) version includes a proprietary SLCD interface card for either eight- or 16-bit Arcs. However, users of the Cumana EMU interface card get the drive for £305.45 + VAT complete with the necessary Emu SLCD interface upgrade. A drive with Emu card, including the Emu SLCD upgrade costs £382.13 + VAT.

Both drives have integral power supply and standard CD-Rom drive front panels. The Morley scores against the Cumana because it has a generous length of detachable mains cable. A generous length of ribbon cable connects the Morley to the interface card.

By contrast the Cumana has a short-ish fixed mains lead and extremely short interface cable. There isn't much hope of a longer connector as Cumana explains it is restricted by the interface electronics.

Installation of both drives was quick and easy. It‹s a case of plug in and power on the drive and your Arc. Evidence of Morley‹s economy is indicated by the spring-loaded disc tray compared with the luxury of Cumana‹s motorised unit. Both are caddy-less drives which require a bare, unprotected, disc be inserted. This saves money – caddies are several pounds each, but means CDs are at risk from scratches.



Morley's Revolution



Cumana's SLCD 300

Practically identical utility discs come with both drives, each with *CDPlayer* from Nexus and *ChangeFSI* from Acorn. The former allows you to play music CDs using a dialogue box which mimics a music CD player control panel. Each has a standard 3.5mm stereo jack socket with a volume control for headphones or external amplification.

ChangeFSI is a versatile utility for converting and displaying picture files you can often find on CD-Roms. *ChangeFSI* can also export converted images as sprite files for use in *Paint* or other applications, such as DTP.

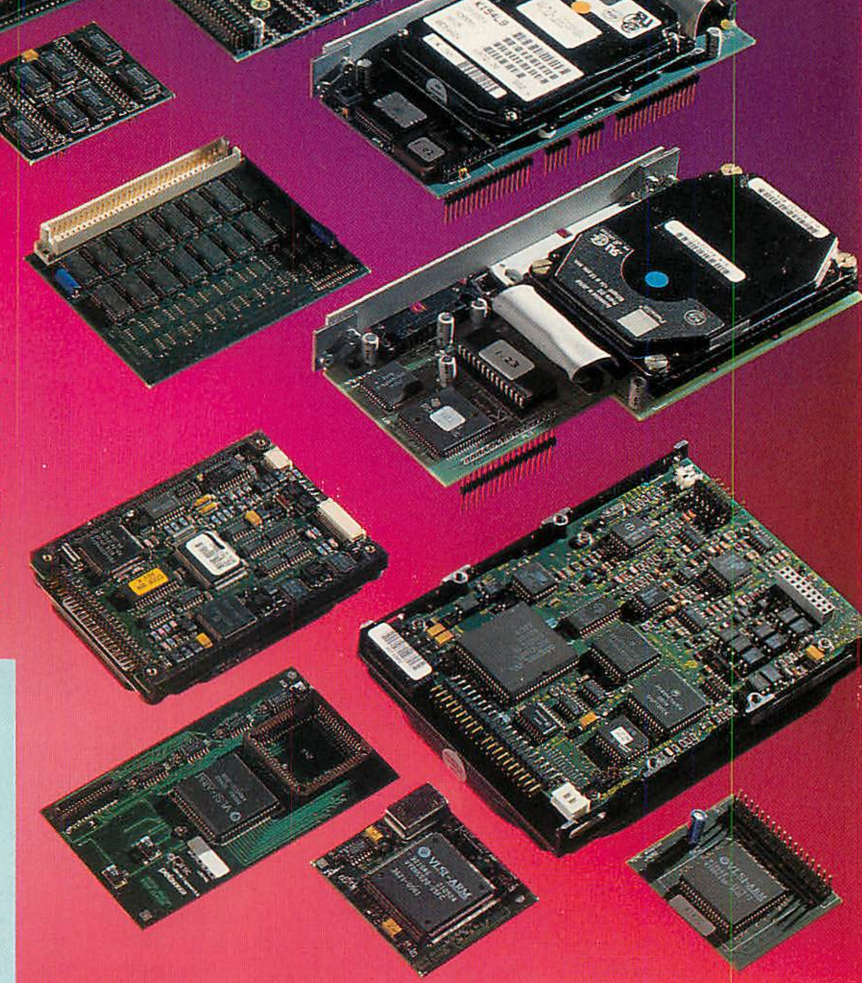
Morley has put some effort into its documentation. You get a professionally laid out 30-page manual which includes some useful diagrams and screen shots. Cumana provides a couple of leaflets which look as though they have been thrown together.

But the crunch is – which is better? Cumana's double spin speed capability means it can suck data off the drive more than twice as fast as the Morley. That means the Cumana drive reliably plays 25fps (frames per second) *Replay* movies in a variety of higher resolution screen modes, including Mode 28. I managed to get the Revolution drive playing back 25fps *Replay* movies for only a few seconds in standard resolution before frames started to be missed.

Morley thinks the 25fps issue irrelevant, as practically nobody supports this speed in commercial CD-Rom titles. But if you have an eye on the future, the Cumana is the one to choose. The Morley is a good product at a good price, but in the end it‹s worth the extra £50 for the Cumana.

Morley Electronics is on 091-257 6355; Cumana is on (0483) 503121.







RISC
developments

See your sprites in their true colours. Roger Amos offers some advice on improving your colour printing

True colours

Colour printers such as the Canon BJC-800 and the Hewlett Packard DeskJet 550C allow Acorn users to print more colours than Risc OS can put on the screen. Risc OS allows a maximum of 256 colours on screen, while Computer Concepts claims that with its TurboDriver the BJC-800 allows printing with full 24-bit colour accuracy, using any of 16,777,216 colours.

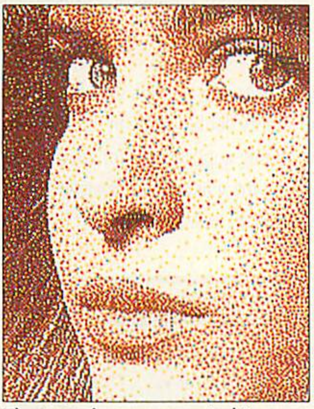
These printers give excellent results when printing coloured text, vector graphics created in *Draw* or *ArtWorks*, or sprites created in *Paint*. But they often give disappointing results when printing 256-colour sprites that have been converted from some other source such as JPEG and Clear files.

The problem arises because *ChangeFSI* introduces dithering (patterns of different coloured pixels) into the sprite to simulate colours in the original that are not in the Risc OS palette. The colour printer also achieves its range of colours by dithering, but uses a kind of dithering based on clusters. Because the clusters are more coarsely spaced than the pixels, not all the pixels are represented and the colour balance is upset.

The solution is to prevent the printer from printing clusters. Let's consider briefly how colour printers work. Most only print in eight colours: those of the four inks (cyan, magenta, yellow and black) and those made up by superimposing two inks (red, green and deep blue) plus the paper colour (normally white). A palette containing these eight colours is called a 'primary palette', and also sometimes 'digital RGB' because it is the same set of colours obtained in a three-bit video system, like teletext. If your graphic uses only these eight colours, the printer driver has no need to introduce clustering and you can make full use of the printer's resolution.



A 24-bit JPEG file coverted to a 256-colour Risc OS sprite with dithering and printed at 100%



The same image converted to a primary-palette sprite and printed at actual size (100%)



The same image converted to a primary sprite and simultaneously scaled up 4:1; before printing it was rescaled to 25%

If not, you can bypass the clustering process by using *ChangeFSI* to convert your 24-bit image to an eight-colour digital RGB sprite and printing that. In practice this is a 16-colour sprite using a specially configured primary palette in which only eight of the colours are used. The boffins at Acorn anticipated this and provided the necessary routines in *ChangeFSI*. Put your computer in any 16-colour mode, click on Special in the Output dialogue box and type 'D' in the writable icon.

All change

In the Processing Options dialogue box do not disable dithering. Do enable gamma correction, otherwise the processed images look like underexposed photographs: 2.2 is a suitable value for many images. You will also need to set values in the Scaling options dialogue box, but I'll come back to that. For the present set scaling to 1:1 so you get a sprite with the same number of pixels as the original image.

ChangeFSI renders the original colours as dither patterns using the eight primary colours. These dither patterns are rather like those used on the screen in Risc OS 3 and not like clusters. Because they are converted directly, the colour rendering is accurate. Don't be put off by the on-screen appearance: at a zoom of 1:1 it will look 'washed out'. If you now print the sprite at its natural size (100 per cent) the colours should be about right but it will look dotty. This is because, if the sprite has a pitch of 90 pixels per inch and you are printing on a 360dpi printer, each pixel is rendered as a block of 16 dots in the printout and, since the dithering results in large numbers of isolated pixels, the resulting dots are very prominent, especially in pale colours such as flesh tones.

Sliding scale

If you scale the image down to 50 per cent before printing, the pixels will consist of only four dots from the printer, one quarter the size and less prominent; the colour will appear cleaner. And if you scale down to 25 per cent, each pixel in the sprite is rendered by one dot from the printer. The dithering will now be so fine that the printed image will have a smoothness that approaches photographic realism. But, at one sixteenth of the original, the image is very small.

Again, there is a simple solution. Remember those scaling features in *ChangeFSI*? During conversion, scale the image up to compensate for the reduction when printing. If you scale up 4:1 in each dimension and you later print the resulting sprite at 25%, your printout will be the same size as the 24-bit original and will have near-photographic smoothness. Indeed, this printout actually retains the 24-bit accuracy of the original. Each pixel in the original is now represented by 16 three-bit pixels in the sprite giving a theoretical 48-bit colour accuracy.

So here is a way that you can see 24-bit images in their true colours now, on paper. To see them on screen we shall have to wait for the next generation of Acorn machines. . .

The word processor for Acorn RISC computers

Impression Style is a new word processor combining the best points of all earlier word processors with many powerful features new to the Acorn platform. Impression Style is a word processor suited for all users - the occasional letter writer, student, small businessman or professional writer. It also incorporates many DTP features so that it can handle complex page layouts with ease.

Word Processing

Impression Style is a capable and very powerful product but it is also an extremely easy to use word processor. In order to make it simple to use, we have incorporated the very latest software technology, found on no other Acorn word processor, including two types of on-line help - interactive help and full hyper-text help. Not only can you tell at a glance what all the controls and menus do, there is comprehensive on-line documentation explaining the features. Simply double clicking on a topic or keyword will display an explanation - and of course you can do this on screen while using Impression Style.



It also offers drag and drop editing - the simplest, most intuitive way to edit documents. There is an integrated thesaurus and dictionary with definitions (another first for Acorn machines) both based on the highly respected Collins publications. Impression Style is the wordsmith's dream come true.

Modern word processing involves much more than creating and editing long text files - producing monospaced typewriter-like documents is often no longer acceptable. Therefore Impression Style offers page layout capabilities second only to the very best DTP packages and it does this without compromising the word processing abilities.

It allows graphics to be embedded into the text or placed anywhere on the page and includes another first for Acorn users - OLE or Object Linking and Embedding.

OLE EXPLAINED

If you want to edit the embedded object (this is usually a graphic, but it could be other data such as a table or equation) you simply double click on the data, which is then transferred directly to the appropriate editing application - for example !Draw. Once you've edited the graphic, simply closing the window will transfer the data directly back into Impression Style. This powerful technique couldn't be more convenient or easier to use.

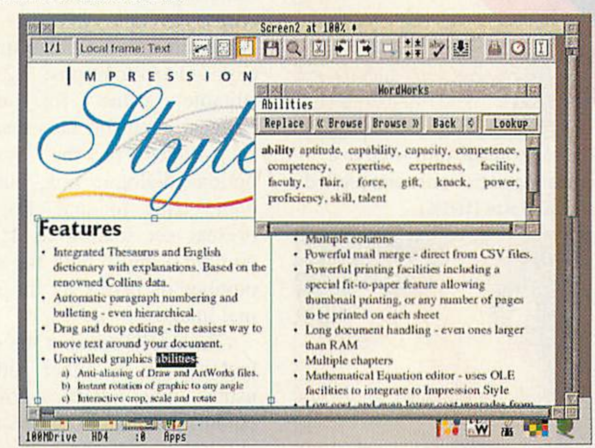


Illustration shows new button bar enabled at the top of the screen. This offers direct, instant access to commonly used functions such as saving, cut, copy, paste. One button is the new zoom tool which allows ArtWorks style drag-zoom into any region of the document.

It also shows a word selected in the text and the pop-up thesaurus window showing a list of synonyms. Note the smart selection of root word.



Computer Concepts Ltd

GADDESDEN PLACE, HEMEL HEMPSTEAD, HERTS HP2 6EX. TEL.: 0442 63933 FAX: 0442 231632
EMAIL: Info@CConcepts.co.uk.

There isn't room to cover *all* aspects of Impression Style, but some other features include:

- Impression Junior, II, and Acorn Advance file compatibility.
- Integrated WordWorks thesaurus and dictionary.
- Automatic section and paragraph bulleting, numbering and re-numbering.
- Support 24 bit, full colour images.
- An open, extendable graphics filter system with TIFF loaders.
- Low cost upgrades from other word processors.
- Mathematical equation editing, master pages & styles.

And the best feature of all:
All this costs only £99 + VAT (£116.32 incl.)

A full specification is available on request.

HOW TO UPGRADE

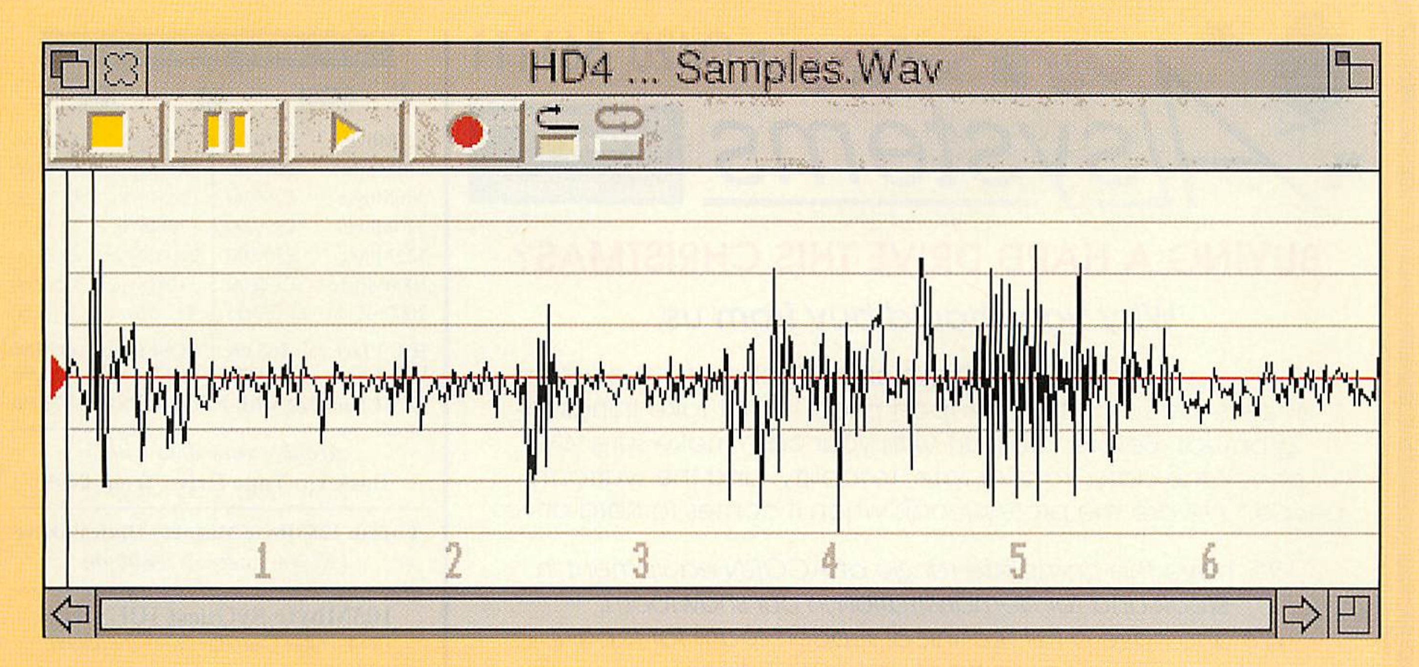
Copies of Impression purchased from Computer Concepts after 1st September 1993 can be upgraded without charge.

All registered owners of Impression Junior and Impression II, can upgrade to the full version of Style, including dictionary/thesaurus, by quoting the registered serial number.
£29.00 + VAT (£34.07 incl.)

Existing Impression II owners can upgrade to Impression Style for £29.00 + VAT but a further upgrade to Impression Publisher, when it is released, will cost another £29.00 + VAT (£34.07 incl.)

Owners of other WP and DTP packages can also upgrade to Impression Style. Return the key/master/N° 1 disc of your existing package with £70.00 +VAT (£82.25 incl.)

* This offer is open to owners of the following packages: Wordz, Ovation, First Word Plus, TechWriter, EasiWriter, StartWrite and Advance.



Calling the tune

Audioworks could be about to storm the music editing market. Ian Burley explains

For a computer blessed with good built-in audio capabilities, the Archimedes hasn't generated much quality software for editing and processing sound samples. This is because Clares cleaned up with its *Armadeus* package, excellent back in January 90 when we first reviewed it.

Unfortunately, Clares hasn't developed *Armadeus* since. *AudioWorks* from Computer Concepts is an up-to-date digital sound editor which may prompt Clares to carry out much needed modernisation.

Sound editing and sampling programs like these are increasing in popularity. People are using sound samples to annotate their own programs, to enable voice messaging, for special effects in games and multimedia authoring.

AudioWork's author, Jason Williams, had been experimenting with audio software on the Archimedes for several years. The culmination of this work was the public domain *DSEdit2*, which showed lots of promise but was only a demo without a working save facility. When Jason approached Computer Concepts earlier this year, a fully-functional commercial version of *DSEdit2*, later to be called *AudioWorks*, fitted into CC's emerging multimedia plans perfectly.

Initially, *AudioWorks* will be supplied with Audio Manager drivers for the new Eagle and Lark cards from CC's partner, Wild Vision. According to CC there is no reason why an *Armadeus* card driver or even drivers for other samplers like Armadillo cards can't be written by third parties.

You can load a recognised sample, either by dragging an audio sample file icon onto *AudioWorks* on the iconbar or double clicking an *AudioWorks* format file itself, *AudioWorks* presents you with a waveform graph window (amplitude against time) depicting that sample. Two waveform windows are shown with stereo samples. Wave forms can be displayed as lines, dots, bars or an outline and the window plus its contents can be scaled.

At the top of the window are familiar, CD player, control buttons for stop, pause, play and repeat. Samples can be played individually, at the same time or only from selected portions. When more voices are used there is a playback volume drop, a direct consequence of the Archimedes VidC hardware. User-configurable buffering is employed to avoid playback glitches when the system experiences transient loads like when moving a window around on the screen.

Information about the loaded sample is accessible from the main menu and this tells you sampling rate, playback duration, sample type plus information about a selected portion of the sample. There is a useful range of mouse-operated cut, copy and paste options with a selection menu to perform a number of enhancements to the paste option. These include clip-to-fit or extend selection and mixing.

Another dialogue box allows you to alter loaded sample parameters. You also get an Oscilloscope display which shows a dynamic frequency response as the sample plays. You can use a piano option for playing simple tunes by mouse-clicking an on-screen keyboard window or using the main computer keyboard.

Mono samples can be converted into two-channel (identical) stereo and vice versa. *AudioWorks* doesn't have any sound synthesis facilities and instead you might want to look at CIS' *SFX* application for generating synthetic laser gun noises and the like.

AudioWorks conforms to the latest Acorn Risc OS desktop style guide specifications and it was easy to navigate the features and menus of the pre-release version we looked at.

For Computer Concepts, *AudioWorks* is as it is written in C, not machine code. This hasn't proved a disadvantage and unless Clares responds to the challenge, we could see *AudioWorks* taking over as the standard for Archimedes sound sampling packages.

Product details

Supplier: Computer Concepts
Tel: (0442) 63933
Price: £49.95 + VAT

Printing press

Professional printing on the Acorn has sometimes trailed behind the competition. Jack Kreindler sees how Calligraph aims to bring the platform into the lead

Isn't it pleasing when the contented smirks of PC and Mac-fanatics turn to amazement at the sight of ultra-fast graphics redraws, or smooth scrolling down a window full of anti-aliased text on an Arc?

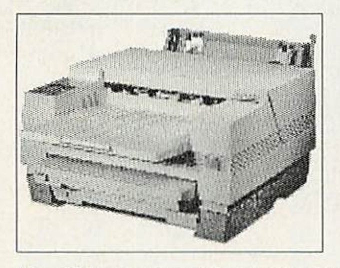
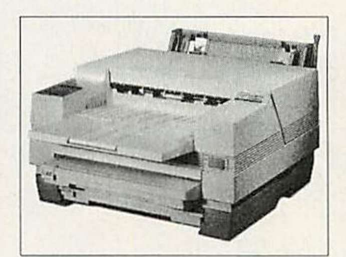
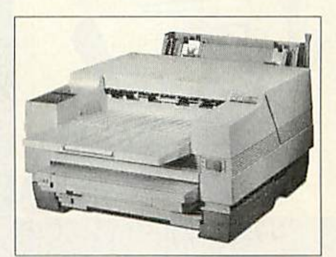
But when it comes to quality typesetting, the lack of professional printing facilities for Acorn users has always given the last laugh to the bigger platforms. At least until now that is.

Richard Piller of Calligraph (the Cambridge company best known for its Arc Laser products) has developed a family of direct drive laser printers, well two to be exact, destined to revolutionise quality printing as we know it on the Archimedes.

The 1200-series printers use the latest in laser engine technology and have finally granted the Acorn platform complete pre-press publishing capability. But what's so special about producing high resolution camera-ready copy from the desktop? After all, Apple Macs have been doing it for years using PostScript imagesetters.

8pt - The quick brown cow jumped over the hazy moon
7pt - The quick brown cow jumped over the hazy moon
6pt - The quick brown cow jumped over the hazy moon
5pt - The quick brown cow jumped over the hazy moon
4pt - The quick brown cow jumped over the hazy moon
3pt - The quick brown cow jumped over the hazy moon
2pt - The quick brown cow jumped over the hazy moon

This piece of text was printed using the Calligraph SuperRes on to plazar paper, which reduces splatter to give very clear resolution. It is reproduced here at 100 per cent, and believe it or not, although the bottom line cannot be seen by the naked eye, under an eye glass you could just make out the words

Magnifying a printout (as shown above) is one way to inspect the quality of the printer. The ordinary Arc-laser printout (300 x 300 dpi) is shown on the left. The middle printout was created with the A4-1200 (1200 x 600dpi). Finally on the right, the image is printed at 200 x 600 dpi on to plaser paper – note the lack of ink splatter

What's new?

Well, one of the remarkable aspects of these new machines is that you no longer need to demolish a five figure bank balance to get yourself imagesetter output. Affordable, professional printing has made its debut, hand-in-hand with Acorn hardware.

Sitting at the top of Calligraph's price list is the TQ-1200 – an oversize A3 laser targeted at the serious publisher. It's big, it's fast and it is capable of placing 720,000 dots onto every square inch of an A3 sheet. At £4995 it undercuts the price of equivalent PostScript printers – like the identical Toshiba engines – by around £1500.

But as impressive as it may be, the jewel in Calligraph's crown comes much further down the range, at a mere £999. Enter the A4-1200 'baby', sharing a similar 600dpi engine to its big brother the TQ-1200, but at a slightly faster rate: eight-pages per minute (A4). In the same price bracket as the 4ppm direct drive Canons on the market, the A4-1200 is not only faster, but boasts true 600dpi output.

But don't current A4 direct drive lasers offer 600 x 600dpi already, I hear you cry?

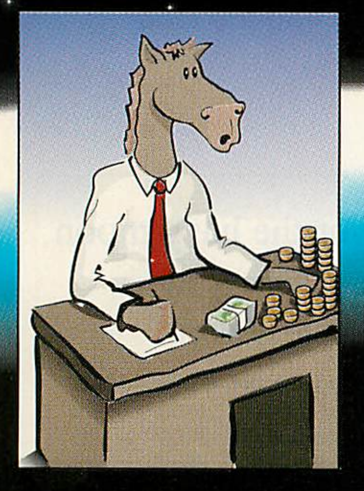
The answer is both yes and no. At the moment, the so-called 600dpi printers enhance their resolution, using various tricks – how they do this is revealed in the resolution enhancement box on the following page. Basically the present range of direct drive lasers only offer an emulated, rather than true 600 x 600dpi output. Armed with true 600dpi engines, the Calligraph lasers already offer superior quality over wannabe 600dot printers.

Higher resolution

Just as 300dpi lasers have been tweaked to higher resolutions, so have the TQ- and A4-1200s. Both of these printers support true output resolutions right up to 1200 x 600dpi, with an option called SuperRes giving an emulated 1200 x 1200dpi effect. Raising the resolution is, unfortunately, offset by longer image rendering (rasterising) time. Although the 1200s can generate imagesetter-like

AS SEEN AT ACORN WORLD

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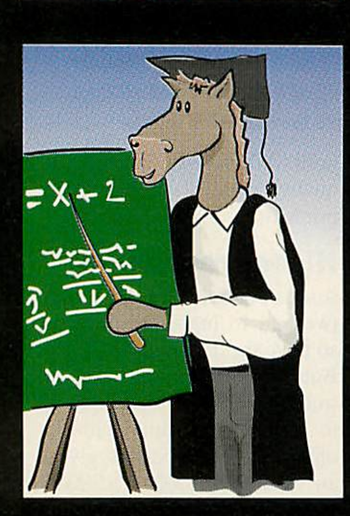
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Acorn user
Almanac is very easy to use, it is exceptionally powerfull and I have a feeling that once you've bought it, you'll wonder how you ever managed without it.

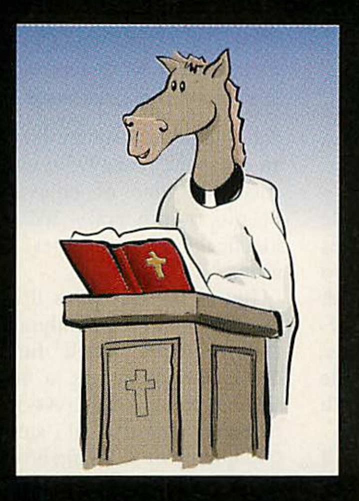
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- Auto linking to address book
- Company address book as
- well as personal address book
- Accounting and cost tracking
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- Fax pack and Arc fax support
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- Attainment records
- Correspondence tracking
- Staff management
- Room scheduling
- Impression support for single 'drag & drop' of addresses from address book.



- Appointments
- Anniversaries
- Time management
- Resource scheduling
- Correspondance tracking
- Mailshot (+Impression)
- Resource scheduling

ALMANAC is available direct from Stallion Software Ltd at £85.00 inc + £2.50 p+p (Optional Filofax £23.50 inc).
Almanac is also available from all good Acorn Dealers.



TEL. 0225 339090 or Fax. 0225 333090. Arundel House, Arundel Road, Camden, Bath, Avon, BA1 5JX.

resolutions, raising the standard to the higher resolution does not mean waiting a lifetime for printouts.

Speed of printing

At 1200 x 600dpi an A3 sheet would contain about 15 million elements, or 15Mb of data. Using standard rendering routines, a typical image of this size should take a 25Hz Arm 3 machine about 1000 seconds or 17 minutes to render, long enough to cause chronic depression.

But using extremely concise machine code, and some bizarre logic, Richard Piller has managed to reduce the typical printing times by around 20 to 25 times with his direct drive technology.

For instance, in a speed test, a 16Mb 25MHz Risc i960-powered QMS 860 (£3500) took a coma-inducing 35 minutes to finish a complex A3 test print at 600 x 600dpi using PostScript II. The same page took a TQ-1200 (driven by a 16Mb Acorn A540) just 90 seconds at 1200 x 600dpi.

Richard Piller gave his rationale for the sloppy and long-winded routines used in PostScript printing.

Programmers who work on large platforms tend to use the raw power of their mainframes to counter the inefficiencies of the code. These routines were also used in software and in emerging industry standard formats, like PostScript, in tandem with the much slower desktop hardware. Hence the problems which arose with a painful lack of speed.

Contrast this to those who now have the pleasure of coding for powerful Acorn hardware. They spent their programming adolescence with the devastatingly fast Beeb and its whopping 32K Ram (sarcasm is completely intentional on this occasion).

In order to create an acceptable level of usability for their applications, the programmers were forced to employ highly-efficient routines using low-level language and brilliant logic. The training has obviously paid off.

And there's more

In addition to the image rendering routines, the Calligraph printer-driver software offers a very comprehensive range of printer control, resolution, halftoning and image manipulation facilities.

Bypassing the restrictive Acorn halftoning patterns, the increased but asymmetrical resolutions of up to 1200 x 600dpi can yield higher numbers of greys without increasing the coarseness of the halftone screen.

A vast array of greyscale and halftone screen options suited to the various resolutions are offered here. For professional publishing purposes, mirror, negative and various gamma-corrected printing options have been implemented. The printer driver has been designed with the professional in mind, with an idiot-proof interface.

There is also a built-in OPI system called Virtual Sprites. This innovation, together with all the other features of the software, has helped earn Calligraph the leading role on the printing side of Graphtech (Acorn's international, pre-press desktop-publishing venture with the publishing giant, AB Dick, of Germany).

Conclusion

The 1200s have set a new standard in desktop laser printing for Acorn machines, both in terms of speed of printing and quality of output.

They have brought the resolutions and materials of the professional printing bureau onto the desktop in your home. And what's more, you don't need to be the Sultan of Brunei to buy one.

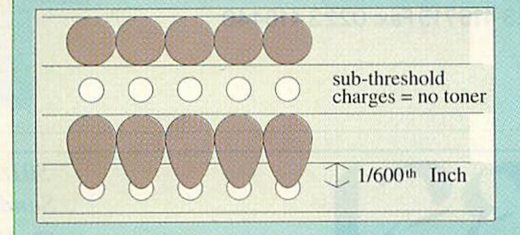
Get sharp: improving the resolution

The resolution of the clumps of toner (dots, to you and me) can be increased, in the horizontal axis, simply by uprating the laser's crystal so that it sends the print information from the laser at a higher frequency.

In other words, the higher the laser's pulse-frequency, the higher the horizontal number of charged areas produced on the photo-conductive drum. This means a higher number of toner clumps across the paper, and thus a higher horizontal resolution.

area where toner is attracted
full threshold charge (picks up toner)
threshold level
area of charge amplification
sub-threshold charge (picks up no toner independently)
area of paper

The vertical resolution, on the other hand, is not so simple. It is set by the turning rate of the drum, so increasing the vertical resolution involves changing the physical printer mechanism – an expensive matter. To get round this, a bodge is devised, to create a line where there is none. Normally a certain charge is released to create the dot. If the charge falls below a certain threshold level, no ink is attracted and no dot is produced (see the diagram above). Laser diodes can, however, be made to fire 'sub-threshold' charges next to normally charged areas. On its own, this sub-threshold charge would not be enough to pick up any toner. But beside the fully charged areas (and thanks to some mind-boggling gaussian-distribution laws) the charge is enough to produce a half-dot.



The effect of this half dot is shown on the left, upping the resolution by 1/600th inch. In this way the vertical resolution is enhanced. The effect can be put to good use in smoothing the staircase-like appearance of curves and non-square edges and in the case of the new Calligraph printers this bodge can enhance the vertical resolution up to 1200dpi.

Printing on to plazer

The other outstanding aspect of the printers is their ability to print on to electrostatically-insulating materials like Plazer and Novadon. (These materials are lightly-coated sheets, available from printing stockists .) This was, until now, possible only with very expensive printing devices (this stuff doesn't pick up toner easily).

Calligraph has engineered the TQ- and A4-1200s so that toner transfer levels and laser power can be set from the desktop, to allow laser printing on to these materials. These materials can then be used, directly in the printing press, so removing the need to make photographs of copy. They have a working life four to five times that of a paper plate in the press and the added benefit of minimising stray toner 'splatter'. The ability for lasers to print on to Plazer and Novadon is a pioneering advance for affordable desktop publishing.

Product details

Products: A4-1200; TQ-1200
Supplier: Calligraph
Tel: (0223) 461143
Price: £999 + VAT; £4995 + VAT

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FLOWER POWER

Acorn's battle in establishing itself as a DTP alternative is convincing the people who put magazines together. Louise Graham looks at one title which went for Arc over Apple

Acorn has often declared its intention to make its mark in the publishing world. Yet, however good the system is, before it can conquer this territory, it has to win over the professionals. One of Acorn's aims is to convince editors, for whom Acorn is an unknown entity, that its system is capable of designing professional magazines and other publications.

In 1992 Acorn was looking to market its *Impression*-based DTP system and was on the lookout for a suitable title to use as a testing ground. Meanwhile, *The Florist Trade Magazine*, a monthly magazine for the florist industry, was in search of an Apple alternative.

Acorn or Apple?

'We were looking for a DTP system,' says Caroline Marshall-Foster, editor of *The Florist*, 'and Acorn wanted a guinea pig. To be honest, we looked at Apple Macs and they were very expensive: we were looking at £15,000 for a system, whereas the Acorn was £8000 and it does everything we want.'

The result was the new DTP system suggested by Acorn: an A540, the Canon Laser Direct Printer and the Scanlight Professional Scanner.

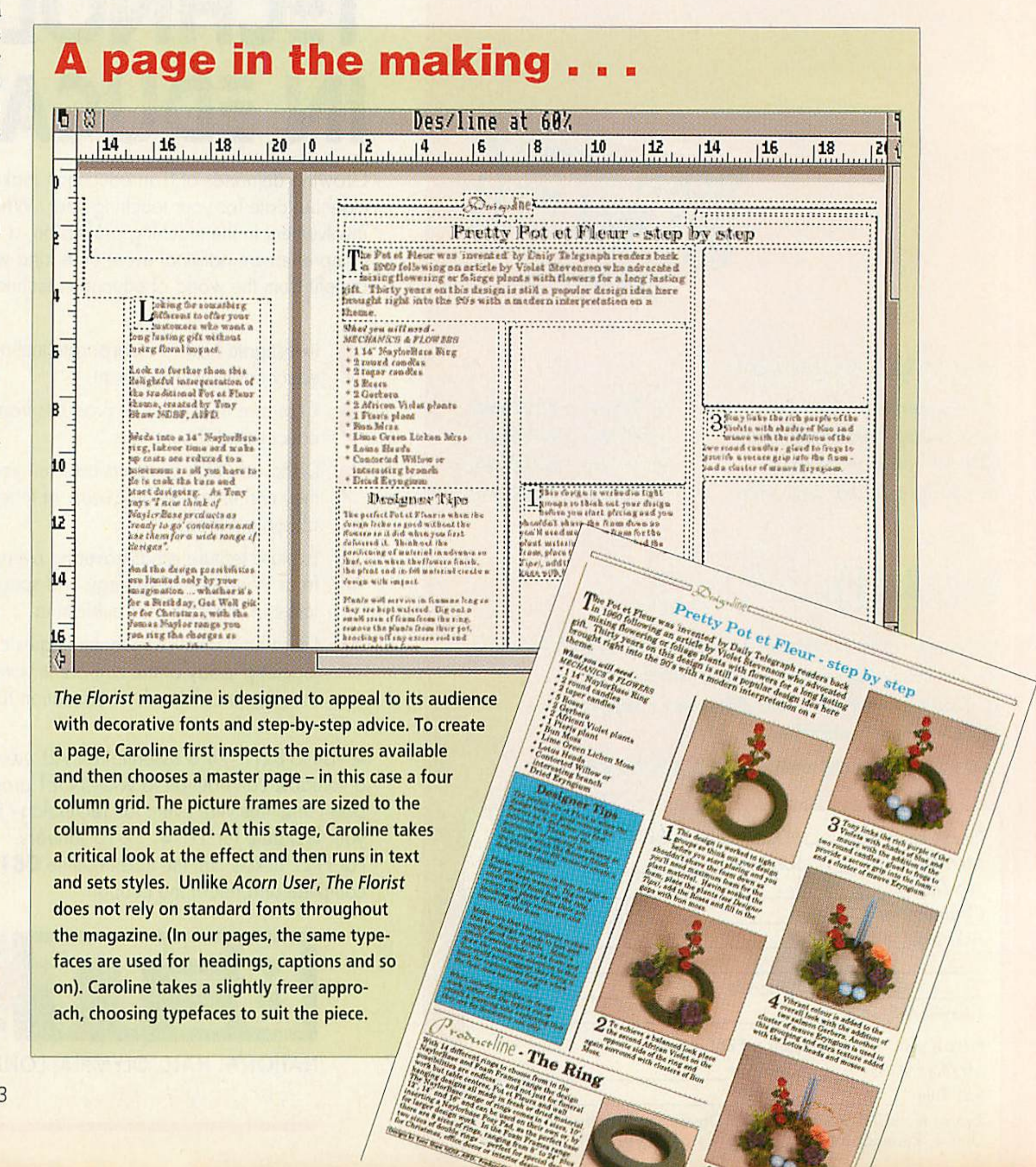
The Florist was an ideal candidate for the Acorn set-up. Published by a small team in south London, the budget was an important consideration for the magazine. Another factor was ease of use; by her own admission, Caroline was a novice as far as DTP was concerned.

'I started in publishing when everything was done by blocks,' said Caroline, 'so DTP was totally radical to me. Then suddenly we had thousands of pounds worth of gear in the office and it had to be used.'

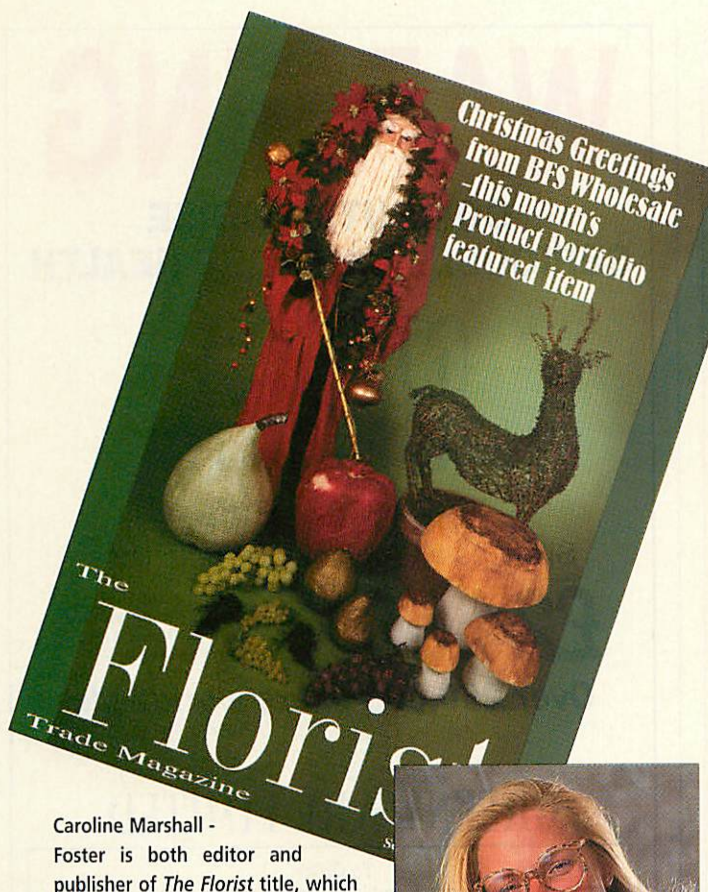
Caroline locked herself in the office for three days, refusing to budge, while she did battle with the Acorn manuals and the *Impression* guide. Just a week later the first complete pages were ready for publication.

'I had to learn on the job,' she says. 'When I laid out the first classified ad, I hadn't learnt how to repel text, so the words went right up to the frame. But I soon learnt it for

A page in the making . . .



The Florist magazine is designed to appeal to its audience with decorative fonts and step-by-step advice. To create a page, Caroline first inspects the pictures available and then chooses a master page – in this case a four column grid. The picture frames are sized to the columns and shaded. At this stage, Caroline takes a critical look at the effect and then runs in text and sets styles. Unlike *Acorn User*, *The Florist* does not rely on standard fonts throughout the magazine. (In our pages, the same typefaces are used for headings, captions and so on). Caroline takes a slightly freer approach, choosing typefaces to suit the piece.



Caroline Marshall - Foster is both editor and publisher of *The Florist* title, which was passed down through her family. As the market-leader in its field, *The Florist* is put together by a small team in South London.

Now a strong proponent of the Acorn DTP system, Caroline said: 'It is so easy to use. I am only too happy to recommend it to other editors or publishers. It does everything I need it to do.'

the next one.' Despite a complete lack of experience in designing layouts, or in using the Acorn system, the first DTP issue of *The Florist* emerged in three weeks, an achievement Caroline is decidedly modest about.

Getting started

'By no means did everything work brilliantly from the word go,' she says, 'but it's not as hard to get a basic layout out as people make out. It's all very logical really. I was certainly not computer literate, but I am fairly logical and that's what got me through.'

With the first issue under her belt, the learning process was well underway. Looking back on some of the later issues, they have certainly evolved with the design becoming more confident.

'Oddly enough,' says Caroline, 'I was fine at the beginning, and then I got font happy, and it all went wrong for a while. I tried to be too clever without really understanding the basics.

'I used to get so frustrated. My mind would see something but I couldn't figure out how to do it.

'For example, when I discovered how to repel text and use frames to block off spaces, it helped enormously. In fact the whole DTP process has made me far more design conscious. Now I have the freedom to try out new design ideas, even if I eventually reject them.'

Using Impression

Although *Impression* took some time to get used to, the actual output was far simpler. 'We use the Laser Direct printer to provide proof copies and the final print copy. We print straight on to heavyweight, high-quality paper which we can send off to the printers.'

Like many other DTP users, Caroline cites this as a hassle-free method, preferring it to the alternative (producing PostScript files on MS-Dos discs). 'The time involved in putting it on to disc just isn't worth it,' she says. 'The results we get are more than adequate.'

Her scanner however is not used for the final copy that goes to the printers. 'We never scan in for the printers to use: only for my guidance. The quality provided by the scanner is not high enough, so we paste in the images in the old-fashioned way. I do use the scanner but only if I want to see how a picture or logo looks on the page.'

Support

Although *The Florist* is now thriving under the new DTP regime, Caroline did have some reservations about her system. Backup was her first problem. The difficulty of getting on-going support was, for her, a major hurdle that had to be overcome.

'When I call up a help-line, I am usually desperate and I am admitting to myself that I have failed,' Caroline explains. 'And, I must say, the response I get on the help line for *Impression* is not always particularly patient. There is also a need for on-site maintenance services as the existing ones do seem very expensive.'

The Electronic Font Foundry (EFF) does come in for some particular praise from Caroline though. 'They have always been very helpful with a lot of the queries I have had, and not just on fonts either. I can't praise them highly enough.'

Conclusion

Despite these niggles, the overall Acorn system came in for some lavish praise. 'I'm sometimes limited by my lack of knowledge, but I have no real criticisms of the system itself. The time it saves me is incredible – it has squeezed an extra week into our old production schedule.'

And that is the real acid test for hard-pressed small teams teams like *The Florist*'s, who always seem to have five weeks work to squeeze into a four-week month.

A good choice then? 'Oh, yes. I'm only too happy to rave about Acorn machines,' is Caroline's immediate response.

Advice

So having been through the process, what would Caroline say to editors or publishers, about to start out? She gave us some words of wisdom.

GO SLOWLY

'The biggest thing is don't expect miracles straight away. I was forced by to learn the system as I went along. But if I was giving advice to someone else I would advise them to set a page formula and use it. Allow yourself to get used to the system.'

EXPERIMENT

'I think you need to allow some playtime each month. I now set aside some spare time when I can, to experiment with design and with fonts.'

GO EASY

'Don't get font happy. I ordered loads of fonts: far more than I am ever likely to need. Now I can probably make do with half of them. Nothing looks worse than a page which uses every font in the book. The trick is to keep it simple, clean-looking and that means using one or two fonts and variations upon them. Having said that, I had to do a Christmassy thing recently and Snowball was the perfect typeface to use. '

GET THE RIGHT TOOLS

'You need a big screen. You really are making life impossible if you try to work on layouts using a 14in monitor. And how someone can work without a colour monitor is a complete mystery to me. On the other hand the scanner is not used more than six times a month, so for the price it probably wasn't worth it.'

RELAX

'In the words of the ad, "It's not all work, work, work." You also need some games to take you away from the relentless grind. If I'm in a non-creative mood, I can play for hours!'

Wonky shelving or a desktop pest? Whatever your problem is, we have the answers

QUESTIONS & ANSWERS

Q I have an external hard drive on a shelf, at a slight angle. Will the tilt cause any problems?

F Gregson
Plymouth

A It could do, depending on how steep the angle of your shelf is. The largest angle at which a drive is specified to operate is 15° to the horizontal, and this is the angle at which the drives in the old Archimedes models are fitted. Most drives are designed to work for long periods only in the horizontal or vertical positions; it won't harm a disc to be run at an angle for short periods, but after a while the bearings might start to wear out, and then you'll have problems.

There's no point in tempting fate: both floppy and hard drives work best when they're flat.

Q I had the misfortune to get a viral infection of my hard disc with the fairly harmless Extend virus. I got hold of a copy of a virus killer and disinfected my machine, but it keeps coming back. What on earth do I have to do to get rid of this pest?

M Hardy
Norwich

A There are two possible reasons for your problem. The first, which really depends on where you got your virus killer, is that you have an out-of-date version of the killer software. This is especially possible if you are using a public domain virus killer, as there is no guarantee you'll have a recent version. The best solution is to subscribe to Pineapple's virus scheme (Pineapple is on 081-599 1476), which guarantees up-to-date protection software.

Known viruses

These viruses are known to !Killer version 1.500 (27-Jul-1993)

AprilFool	Wimp task called April Fool. Very unlikely to actually work, but there is a chance of data loss if it does.
Archie	Appends to absolute (&FF8) files. 1210 at end of a file shows infection (Hypo1210 is an innoculation).
Arcuebus	Spreads using false NetStatus module, which may use one of eight filenames.
BBCEconet	Appends to absolute (&FF8) files, and spreads using a trojan BBCEconet module which it installs.
Bigfoot	Loaded by !Boot. Desktop task called BigFoot. Actual virus is a BASIC file with a randomly created name.
Boohoo	Appends to modules. Modules grow by about 1K and are datestamped - spreads very fast!
Breakfast	Appends to absolute (&FF8) files, and spreads using a trojan BBCEconet module which it installs.
CeBit	Module called TlodMod - loaded by !Boot.
Code	Creates file called Code, which when loaded starts a desktop task called 'Window Manager'.

Pineapple guarantees an up-to-date killing operation

On the other hand, the Extend is very old and almost every virus killer can tackle it, so the chances are that you haven't disinfected all your floppy discs. Viruses can hook themselves onto any disc, and can also hide in archive files, which will not be checked properly by all killer software.

It's a long job, but if you really want to clean up your system, you're going to have to check every disc you use.

Q I've got a high density disc (it is marked 'HD' just on the right of the shutter), but when I save my files onto it, it generates a 'Disc full' error after storing only 800K of data. Why should this be, and how can I make the most of the high density capacity? My machine is an A4000, so it does have the new drives.

M Newby
Hertfordshire

A Just because a disc is marked 'HD', it does not mean that it has been formatted to store the maximum amount of data possible. High density discs can be formatted to the usual 800K E format (or, indeed, any low density format, such as DOS 720K), and then they can be used in old machines as well as new ones. All you need to do to use the full potential of your HD disc is to reformat it to 1.6Mb; the only disadvantage is that you won't be able to use the disc in old machines.

Q I'm writing a Wimp program, and I've been having a few problems with a routine I've written to extract null-terminated strings from memory. My routine is as follows (assuming the string is stored at block):

```
s$=LEFT$($block,INSTR
($block,CHR$(0))-1)
```

The `INSTR` part finds the position in the string of the null character, and then the `LEFT$` command extracts only the characters up to that position. This command sometimes goes wrong. Can you help?

S Fairclough
Newcastle-upon-Tyne

A Interestingly enough, we've received quite a few queries along these lines recently. The cause of the problem is one of those obscure slips that seems blindingly obvious when you spot it.

The problem is that the string indirection operator $ extracts characters from memory until it reaches a carriage return character (Ascii code 13). As the strings we are storing are null-terminated, there is absolutely no guarantee that there will be a carriage return anywhere in sight, so the results of the expression `$block` are totally unpredictable.

To get round this problem, you have to write a dedicated function which extracts null-terminated strings form memory. The following is such a function.

```
DEF FNzero_string(point%)
LOCAL string$
string$=""
WHILE ?point%
 string$+=CHR$?point%
 point%+=1
ENDWHILE
=string$
```

With this function, the problematic line can be rewritten as:

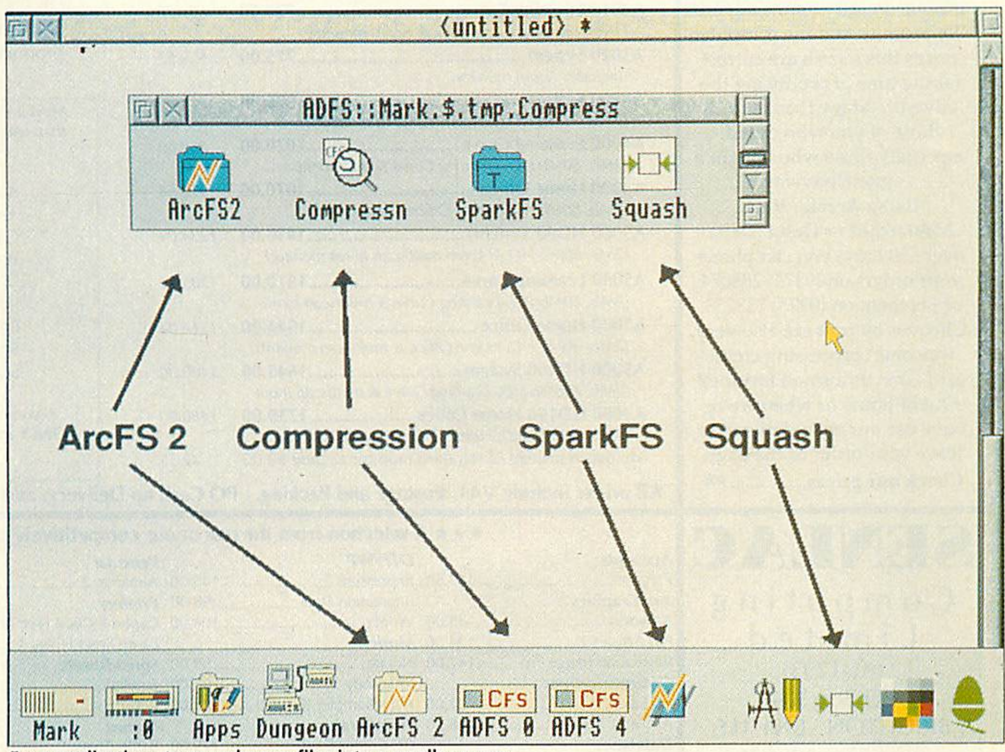
```
s$=FNzero_string(block)
```

Q Please can you help me? I must be the only Acorn user who hasn't got a clue what an archive is. People are always going on about archives and compression techniques, but I don't understand a word of it. Any chance of a quick run-through?

W Bannister
Stoke-on-Trent

A As the more mathematical of you may be aware, there are a number of clever techniques out there which allow files to be processed in a special way so they take up less disc space than before. The name given to this processed file is an archive, and the process of making a file smaller using this method is called 'archiving' or 'compressing'.

There are a number of products which allow you to take files and compress them into smaller archives. The first, which will be familiar to most users, is called *Squash*, and is provided free with your machine.



Four applications to squash your files into a smaller space

This application works very simply: you drop a file onto the *Squash* icon, and you can save away a new version of it with the filetype *Squash*. This file will be smaller than the original, and you can get the original file back by dropping it back onto the *Squash* icon.

The other three main compression packages are all commercial: they are *ArcFS 2* from Software 42, *Compression* from Computer Concepts and *SparkFS* from David Pilling. These all work in different ways.

ArcFS 2 is probably the easiest to use of the three packages, and is the compression method used on our cover disc. To compress files, you create an archive file, which, to all intents and purposes, acts just like a normal directory: double-clicking on it opens up a directory window into which you can copy files and so on.

However, this archive is in fact a file, and takes up far less space than a normal directory would. The biggest bonus for *ArcFS* users is the inclusion of a freely-distributable reader for archive files, so you can send your friends archives without breaking the law.

Compression takes a different approach. When you run *Compression*, it puts a disc drive icon on the left-hand side of the iconbar.

The new drive icon acts like a normal disc icon, so clicking on it will bring up a directory viewer for that disc, but the bonus is that anything you save onto this disc will in fact be compressed, though you won't know anything about it.

The idea is that if you look at your disc normally (using the normal disc drive icon), all you will see is a load of compressed files. However, look at it through *Compression*'s icon, and it looks like a totally normal disc.

Finally, *SparkFS* is aimed at a different sector: those who want ultimate flexibility in their compression. *SparkFS* is modular, and enables you to decompress files which have been compressed on other machines, using any of a large number of techniques (like Tar, Zoo, Zip, MacStuffit... these are real names, I promise).

SparkFS is very flexible, but like all very flexible applications, it is a little harder to use than the simpler competition.

Software 42 is at 109 Ferry Road, Hullbridge, Essex SS5 6EL; Computer Concepts is on (0442) 63933; and David Pilling is at PO Box 22, Thornton Cleveleys, Blackpool FY5 1LR.

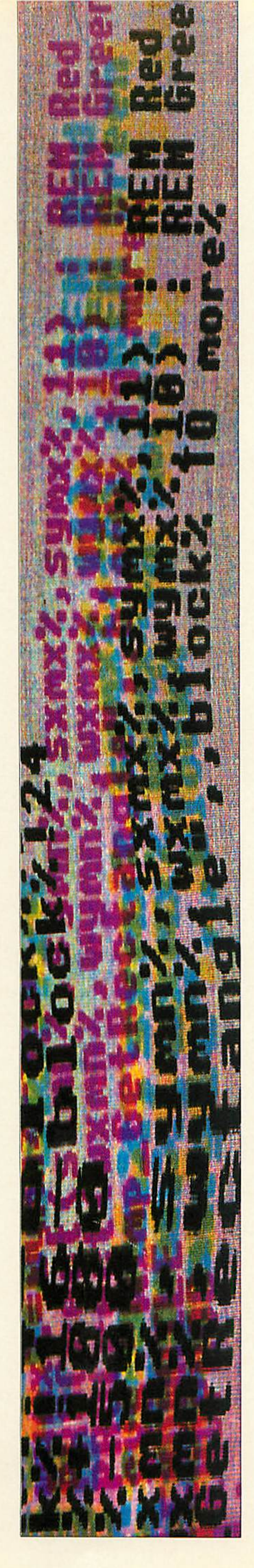
Update to basic steps

Martyn Fox has written to us with the following information.

'In your reply to Mr Habbershaw in the October Questions and Answers you said that the easy Basic tutorial book market seems to have been left unexploited since the Arc was launched.

'You will be pleased to hear that this situation has been rectified by my new book, First Steps in Programming Acorn Risc OS Computers, published by Sigma Press. This book introduces readers to BBC Basic V from the very beginning (starting with pressing F12 to get the command line prompt) and leads up to writing a game with moving sprites and a database program involving file handling.

'The book costs £12.95 from Sigma Press, 1 South Oak Lane, Wilmslow, Cheshire SK9 6AR, tel (0625) 531035, fax (0625) 536800. The book's order number is ISBN 1 85058 521 0.'



Back to basics

Getting less basic by the month, Mark 'Maestro' Moxon takes us through a couple of control structures that will prove fundamental to your programming skills

If you've made it this far, you're in control. Seriously: give it a couple of months, and you'll be able to understand 90 per cent of the programs you see. And you'll be able to criticise them. And make loads of new friends with your new-found knowledge. That's a promise.

On the other hand, there's plenty to learn, like all the other control statements I hinted at last month. On with the show, maestro...

A CASE STUDY

After last month's foray into the exciting yet educational world of the IF-THEN construct, it's time to move on to the next stage: the CASE-ENDCASE construct. Time for a practical example? I think so.

Imagine we wanted to write a program which presented a number of mathematical problems, based around the four rules of arithmetic. When the program is run, it asks which rule we want to test, be it addition, subtraction, multiplication or division; the program asks a specific question, using the specified rule.

This program could be implemented using IF-THEN statements, but it would be a little clumsy, so what we need is CASE-ENDCASE. Before I explain how it works, have a look at Listing One, which implements our password system above. Try running it off the magazine disc: it works, I promise you.

First of all, have a look at the way the CASE statement is constructed. The first line of it is in the form:

`CASE <variable> OF`

where the variable in this case is the letter we've entered: one of A, S, M or D. The next set of lines is in groups, each starting with a line like:

`WHEN <match>:`

Effectively, what happens is that the program searches through these WHEN state-

Listing 1

```
REM >Listing1¶
:¶
ON ERROR REPORT:PRINT " at line ";ERL/10:END¶
MODE 0¶
:¶
PRINT "Which rule do you want to test?"¶
PRINT "  (A)ddition"¶
PRINT "  (S)ubtraction"¶
PRINT "  (M)ultiplication"¶
PRINT "  (D)ivision"¶
INPUT "Please enter A,S,M or D: "rule$¶
:¶
CASE rule$ OF¶
 WHEN "A"¶
  A=RND(10):B=RND(10)¶
  PRINT "What is ";A;" + ";B;" ";¶
  INPUT result¶
  IF result=A+B THEN PRINT "Correct" ELSE PRINT "Wrong"¶
 WHEN "S"¶
  A=RND(10):B=RND(10)¶
  PRINT "What is ";A;" - ";B;" ";¶
  INPUT result¶
  IF result=A-B THEN PRINT "Correct" ELSE PRINT "Wrong"¶
 WHEN "M"¶
  A=RND(10):B=RND(10)¶
  PRINT "What is ";A;" x ";B;" ";¶
  INPUT result¶
  IF result=A*B THEN PRINT "Correct" ELSE PRINT "Wrong"¶
 WHEN "D"¶
  B=RND(10):A=B*RND(10)¶
  PRINT "What is ";A;" / ";B;" ";¶
  INPUT result¶
  IF result=A/B THEN PRINT "Correct" ELSE PRINT "Wrong"¶
 OTHERWISE¶
  PRINT "Sorry, I don't know that rule."¶
 ENDCASE¶
END¶
```

ments, one after the other, until the variable in the CASE line matches the match in the WHEN line. When a match is found, the lines after the WHEN are executed (up until the next WHEN). If no match is found, then the lines after the OTHERWISE line are executed.

So, how does this work in our example? First, the program asks which rule we should be testing, and the user enters the relevant letter into the variable rule$. Now we start our CASE check, which does one of the following:

- When it is "A", set A and B to random values between 1 and 10 (inclusive); that's what the RND function does. Next, print the question, ask for an answer in the variable result, and check to see if it is right. If it is, print `Correct`, otherwise print `Wrong`. This shows the power of the CASE construct: we can include an IF-THEN statement as one of the lines to be executed, and it is still very easy to see what is happening.
- When it is "S", do exactly the same, except print a subtraction question, and check the answer against A-B, rather than A+B.
- When it is "M", do exactly the same, except print a multiplication question, and check the answer against A*B.
- When it is "D", we have a division question, which is slightly different. As we want to deal with integer division (as entering decimals is inaccurate with recurring answers, like 0.3333....) set B to a random value between 1 and 10, and then set A to a random multiple of B; in this way we are guaranteed an integer division question. Print the question, get the answer into result, and check it as normal.
- If we get to the OTHERWISE statement, then no match for rule$ has been found out of "A", "S", "M" or "D", so the user hasn't entered a valid arithmetic rule. In this case we should complain bitterly.

The ENDCASE line simply marks the end of the construct: this is how we know where to continue execution after one of the WHEN or OTHERWISE branches has been executed.

MEAN-WHILE

The next control statements you'll find useful are WHILE-ENDWHILE and REPEAT-UNTIL, which are closely linked. As the names suggest, these allow you to repeat sections of your programs again and again, dependent on certain conditions which you specify.

Let's have a look at WHILE-ENDWHILE first by considering Listing Two; this simple-looking program implements a very basic password protection system. Let's see how it works.

First, we get the password into pword$ in line 6. The construct between lines 7 and 10 executes in very much the same way as it reads: 'while the password is not "AU", print `Access denied`, get another password, and go back to check the password again.' The tricky part is looping back: this is what ENDWHILE does.

If the condition in line 7 is not met – in other words, the password entered is in fact correct – then none of the lines between the WHILE and ENDWHILE are executed, so if the correct password is entered, the program simply prints that the password is accepted, and it terminates. Otherwise the program goes round and round until the correct password – AU – is entered.

Do note that in this particular example, pressing ESCAPE will terminate the program; if we wanted to prevent this, we could simply change line 3 to `ON ERROR RUN`, which would mean that if an error occurred (such as the user pressing ESCAPE) the program would be re-run. Try the change, but make sure you've saved all your desktop files first, just in case you make a typing error.

The second construct is REPEAT-UNTIL. Look at Listing Three. This reads set count% to zero. Now repeat the following – increment count% by one, and ask for password – until the correct password is entered, or count% equals three. If count% is three, deny access, otherwise accept the password.

This is the common 'three goes or you're logged off' approach. The variable count% logs how many attempts the user has had: if it reaches three (as checked in line 10), access is denied. In either case the condition in line 10 is satisfied, so the REPEAT-UNTIL loop is terminated.

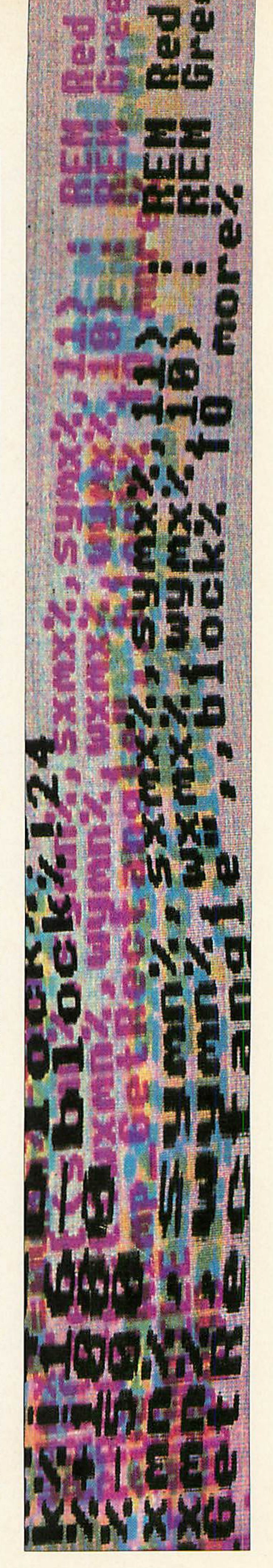
I'll see you next month for the formidable FOR-NEXT loop.

Listing 3

```
REM >Listing3¶
:¶
ON ERROR REPORT:PRINT " at line ";ERL/10:END¶
MODE 0¶
:¶
count%=0¶
REPEAT¶
 count%=count%+1¶
 INPUT "What is your password? "pword$¶
UNTIL pword$="AU" OR count%=3¶
IF count%=3 PRINT "Access denied" ELSE PRINT "Password
accepted"¶
END¶
```

Listing 2

```
REM >Listing2¶
:¶
ON ERROR REPORT:PRINT " at line ";ERL/10:END¶
MODE 0¶
:¶
INPUT "What is your password? "pword$¶
WHILE pword$<>"AU"¶
 PRINT "Access denied"¶
 INPUT "Please re-enter your password "pword$¶
ENDWHILE¶
PRINT "Password accepted"¶
END¶
```







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RIEMANN SPHERES

Philip has taken the tried and trusted Julia set and plotted it rather cunningly on a sphere. He also uses a simple method to speed up his algorithm so the plot only takes a couple of minutes (a couple more on an Arm2) even though the program is in humble Basic. The author describes his work:

'My fast algorithm works on the following principle. If you plot four adjacent points on the sphere in a square, and they all turn out to be the same colour, you can be pretty sure that the colour in the middle is also the same. This prevents the time-wasting working out of every single point on the surface of the sphere, and although the program sometimes cuts things off and guesses wrongly, these occasions are few and far between.

'The variable z% controls the size of the squares for the initial scan, in OS units. 16 was found to be the optimum for this particular plot. Obviously, the smaller the square size, the larger the area of an 'irregular' shape which can be filled, so the plot is quicker; but you have to do more points in the initial scan, which defeats the object. With larger squares, larger chunks are missed out more quickly, but the large squares don't fit into the nooks and crannies of the shape so easily.

'The variables la and lo can be set in the call PROCriemann, and these are a sort of latitude and longitude for the viewing angle of the sphere (in radians). If you used these variables to plot the sphere in a different orientation each time, and captured each image as a sprite, you could animate the sphere as a spinning ball.

'Another nice addition would be to add shading, like in Peter Voke's ThreeDee program from Acorn User April 1986.'

Philip might be interested to note we knocked up a C version, in fact it went a few seconds slower – so much for compiled languages. Readers might also like to look at the bonus ReadMe and SeeMe files Philip supplied. These describe the maths behind his listing in more detail and can be found on our quite lovely cover disc.

Author: Philip Hudson

GOURAUD

We've covered Gouraud shading on these pages before now, but the demo included here is especially handy as it is a practical and speedy implementation of the technique. You'll find both the C source and object code on the cover disc.

The method, which was invented by Mr Gouraud himself, came about when some means of making three dimensional objects, rendered as a finite set of polygons, needed to have all of the edges smoothed out to provide improved realism.

Gouraud shading is a means of interpolating the colours at each of the corners of a triangle. When applied to a 3D model, the quality of an image can be greatly improved, since each of the faces of an object merge smoothly with those adjacent to them.

For more details on the theory involved in Gouraud shading you should take a look back at our 3D series (*Acorn User*, July 1993, p.99).

Author: Neil Cason

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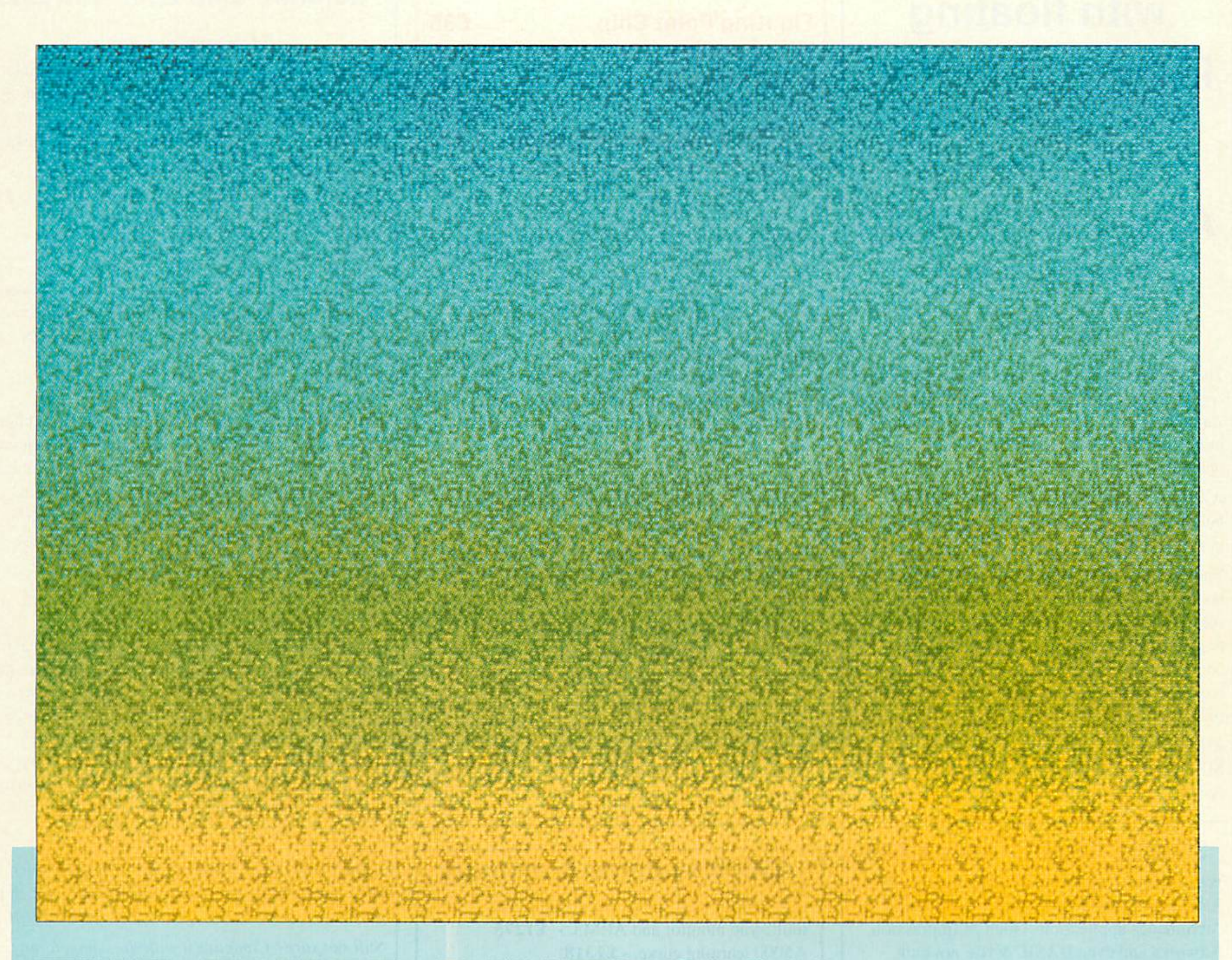
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THE THIRD DIMENSION

We're renowned at *Acorn User* for publishing programs that plot wacky mind-bending images in pulsating colours. Bryan's programs go one stage further and, at the expense of a small migraine, give the illusion of three-dimensionality. He explains.

'The current craze in shops like Athena is for posters which seem to be a mass of random dots, but when looked at in the right way give the illusion of a 3-D image. This effect can be reproduced in the comfort of your own home.

'The program *Square* illustrates the basic principle and gives some viewing practice. The trick is to look INTO the screen rather than at it. Look at your reflection if you can see it. You should see a square floating in front of the background. It takes some time to see the image: keep staring.

'The basis for three-dimensional vision is parallax. If you hold a finger in front of you and look at the view beyond, you see two images of your finger; if you look at your finger you see two images of the background. The brain analyses this into a solid picture. If you look at the Square picture (rather than into it) you will see that there is a repeat pattern to the random dots.

'As you look through the screen, the lines of vision from your eyes become closer to parallel. The left eye moves to the right and vice versa until the repeat pattern meets up one unit out of phase to form a new image; the brain interprets this as being behind the screen. The repeat distance is shorter on the square than on the background, so, when one of them lines up the other doesn't quite, giving the double-vision effect necessary for the illusion of depth.

'The program works by scanning the screen in vertical lines and copying what it finds the appropriate distance to the right. If the bits of screen it scans are blank, it generates a randomly-coloured pixel and copies that instead. This starts the process off and fills in any blanks that arise as the image slowly builds up.

'*Landscape* is my attempt to be artistic and uses a method for determining the repeat spacing that is meant to reflect the actual distance of the objects.'

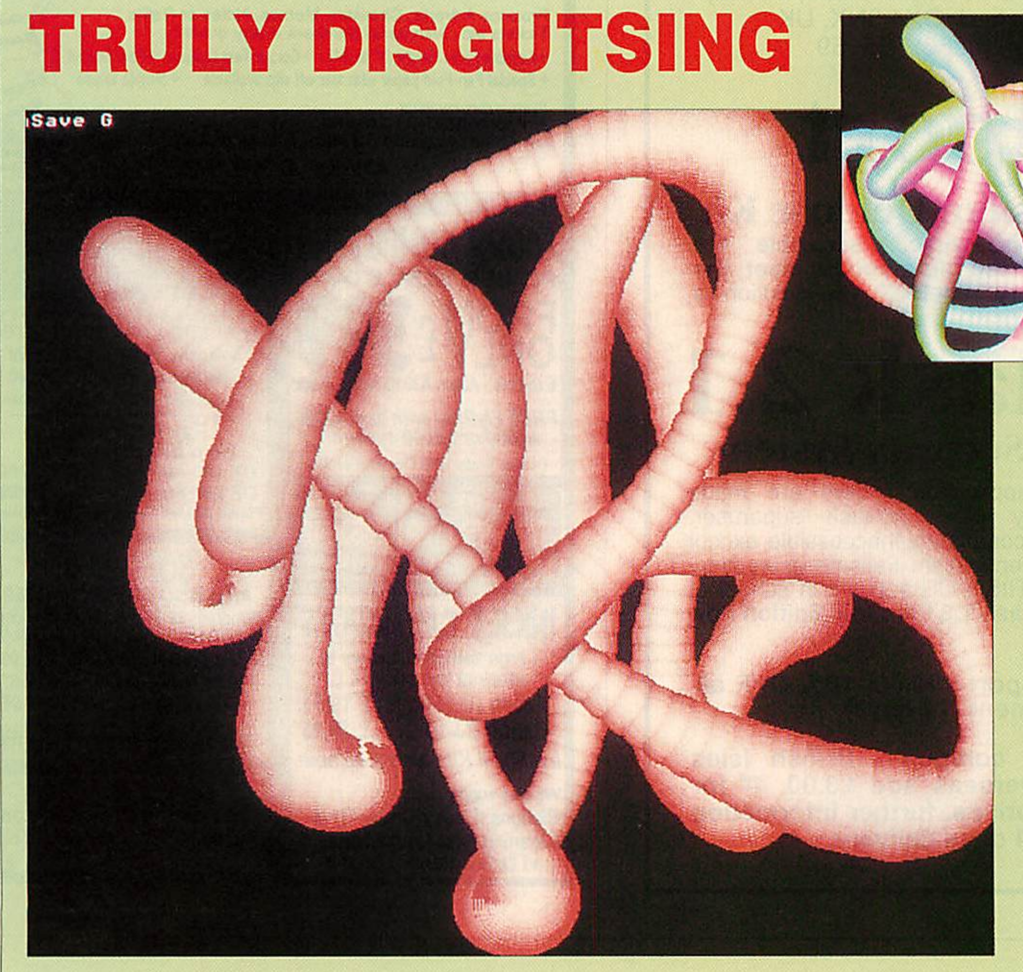
e% is the distance between your eyes, l% is the nominal distance from eye to screen and d% is the distance from the screen to the object. Spacings varying by more than a ratio of two don't seem to work, which means that minimum d% shouldn't be less than about one-third of maximum d%. We couldn't resist the challenge of a one-liner and after not too long managed to squish Bryan's *Square* program onto a single line; otherwise *Square1* is exactly the same.

'*Planets* shows some of the limitations of screen versus printed poster. Where *Landscape* used flat images (like a stage set), *Planets* tries to draw solid spheres which, if you look closely, are actually made up of flat slices because even 640-pixel wide resolution is not quite good enough. A hi-res monitor and a colour card would produce better results.

'WARNING: Staring at these images does begin to hurt after a while, probably because of the conflict between the image distance given by parallax and the focusing distance, but it is interesting as you do get a strange glimpse into a world where everything is wallpapered from the earth to the sky.'

Author: Bryan Creer

TRULY DISGUTSING



Fans of the the Dutch fiend will not be disappointed this month. We believe he has even outdone the grossness he achieved exactly a year ago with his quite vibe, sorry, vile, *Tentacles*. *Guts* draws... well... run it and see.

If you have a VGA monitor you might 'prefer' to run *Guts-VGA* for an even more realistic display.

Ooze uses the same principle but plots the, er, 'thing' in multi-colour using Risc OS 3's ColourTrans. Again there is a VGA version available. If you can't stomach these two, you can try calming down with the very pleasant *Rain*.

Author: Jan Vibe

IMPRESSIONSPELL

```
Word number 47956 is SOLIDISK
Word number 47241 is SLASHES
Word number 38705 is POORLY
Word number 15760 is DUSTPAN
Word number 3884 is BALLADES
Word number 19371 is FILINGS
Word number 50840 is SWAGE
Word number 52116 is TEXTURES
Word number 33787 is NECTARINES
Word number 54219 is TWITCH

Word 'AARDVARK': found - number 0
Word 'ACORN'   : found - number 498
Word 'CORRECT' : found - number 10945
Word 'RONG'    : not found

As start at 0       Bs start at 3697    Cs start at 6702    Ds start at 12020
Es start at 15828   Fs start at 18585   Gs start at 21250   Hs start at 23023
Is start at 25016   Js start at 27669   Ks start at 28174   Ls start at 28582
Ms start at 30376   Ns start at 33545   Os start at 34512   Ps start at 35903
Qs start at 40788   Rs start at 41098   Ss start at 44504   Ts start at 51245
Us start at 54317   Vs start at 55772   Ws start at 56812   Xs start at 58321
Ys start at 58332   Zs start at 58482
```

Reader Paul Burns has been fiddling about with the module *ImpressionSpell* which comes with *Impression* and handles spell-checking, dictionaries and that sort of thing.

Paul has pointed out that using the module is very easy via a number of SWIs. He has supplied us with an example multi-tasking anagram finder which we hope to include on a cover disc soon. In the meantime, we knocked up a very simple demo called *ImpSpell* just to show you how some of the most useful calls work.

Install *Impression* before running *ImpSpell* so that the spell module is loaded. The program begins by reading the number of words in the dictionary with:

SYS "Spell_ImpressionInfo" TO no_words

Then, a few random words are printed. The call:

SYS "Spell_GetWord",n TO ,addr

returns a pointer to word number n and the word is null-terminated. To check a particular word use:

SYS "Spell_EnumWord",word$ TO ,n

which will either return the number of the word if it is found in the dictionary or will generate an error otherwise. *ImpSpell* checks for both eventualities. Finally, the call:

SYS "Spell_FindWord",word$ TO n

can be used to build up a table of pointers into the dictionary. This can be useful in anagram finders and the like where you know the words you are looking for contain certain letters.

In such cases you can use a table to search for words beginning with only certain letters or even pairs of letters.

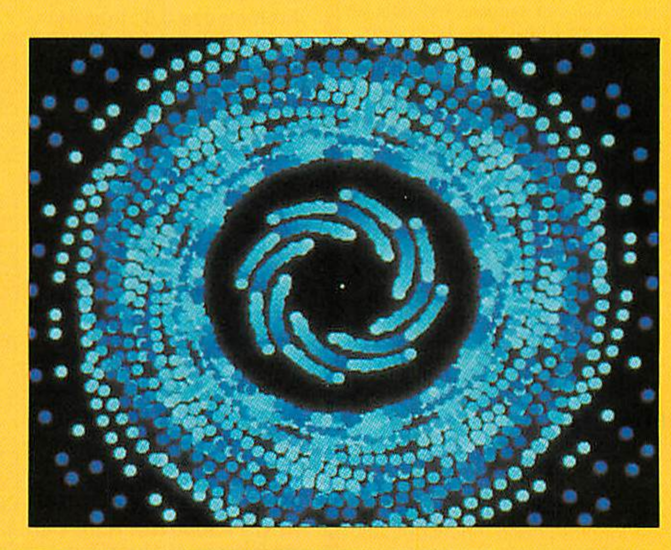
Author: DCA,
based on information from Paul Burns

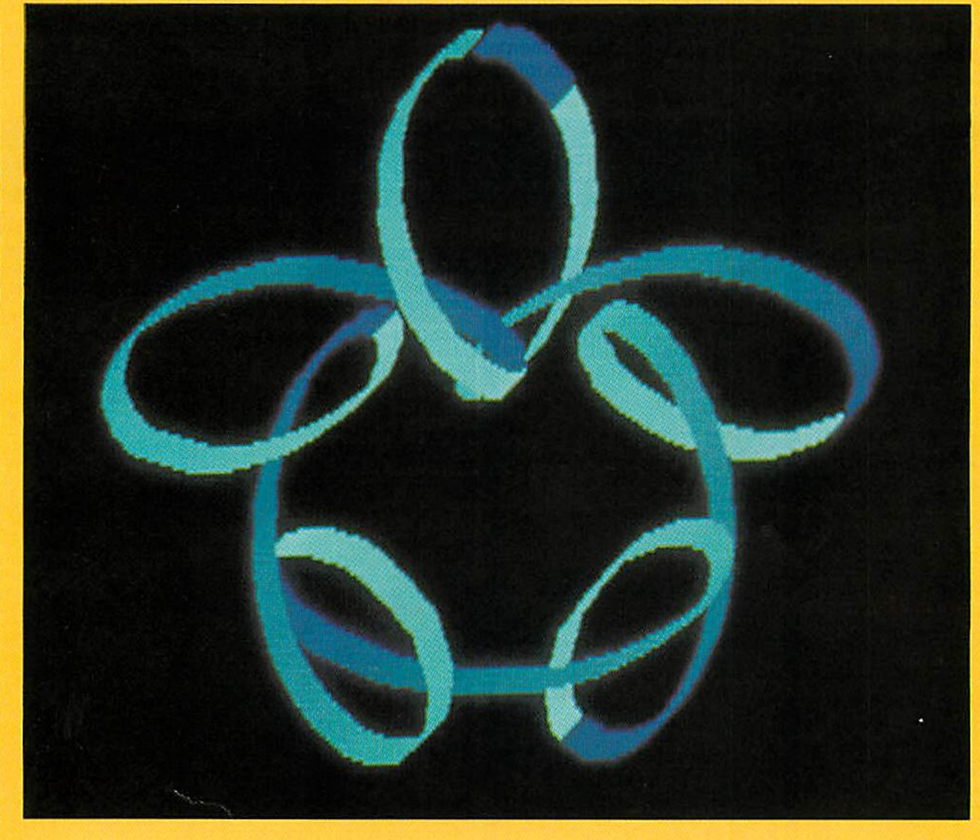
SPYRA' AND WOTSIT

Two short and graphically-pleasing doodles from Kane Clover of Altrincham in Cheshire. As Kane is 12 his programs are all the more impressive. Both listings use the same, simple colouring technique: enter an angle into *Spyrathingy* then move the mouse to create a pattern, then click on Adjust to clear the screen. *Wotsit* creates a series of increasingly elaborate... well... elaborate things. They're very pretty whatever they are, so thank you Kane.



Author: Kane Clover

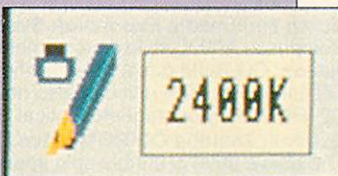




ROOMBAS

This module performs the simple but extremely useful function of providing an on-screen reminder of how much free space there is in the Wimp pool.

This saves having to have the rather cumbersome task window open all the time and can give an indication of when it might be a good idea to quit that copy of *Pipedream* you loaded half an hour ago and haven't used since.



RoomBas assembles a module called *RoomMod* which can be either RMloaded in your boot file or double-clicked on while in the desktop.

Being a module task it takes up little room and remains resident, so will survive leaving and re-entering the desktop. John has adhered strictly to the Risc OS rules, even as far as supplying interactive help for his icon and menus (new to Risc OS 3).

To test this interactive help feature, load the *Help* application from your applications discs, and bring up the iconbar menu for *Room*. You will see that help is shown for each item in the menu: this feature is new in Risc OS 3, as in Risc OS 2 menu items could not have individual help associated with them. The actual help text is stored in the module, starting at he label imess1 and going through to imess4.

Writing module tasks can be a bit tricky so any new example is always welcome. If you want further details have a look back at the *DoubleTake* module (January, February 92) which goes over the tortuous route by which module tasks establish themselves.

Author: John Wike

*QUIT

All but the shortest of programs should be on disc accompanied by quick instructions as to how to use them. Please write your name, address and program title on all discs and include a suitable stamped addressed envelope if you want your disc returned. Program explanations and further details are very helpful and are best included on the disc in the form of a ReadMe file.

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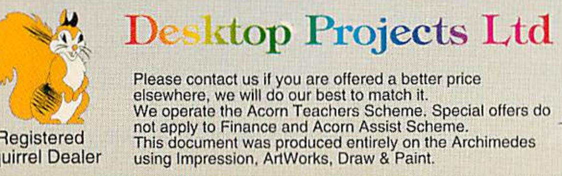
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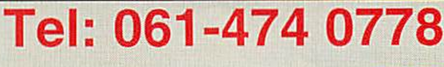
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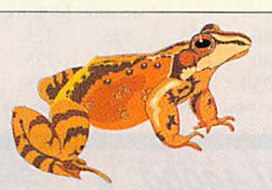
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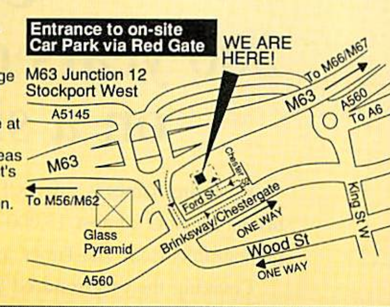
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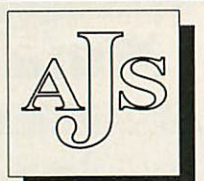
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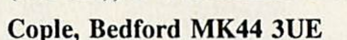
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● Master 128, 40/80 track dual 5.25in disc drive, manuals, plus loads of software – £250 ono. Sheffield. Tel: (0742) 694316

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● A3000, 2MB Ram, E1Z0 8060 multisync monitor, manuals including Acorn Basic Guide – £500 ono. Norfolk. Tel:(0553) 760839

● Pipedream 3.0 – £40, Wordwise Plus – £10, Twin – £10, Here with the Clues – £5, all for £50. London. Tel: 081–807 6631

● A5000, 4Mb, 40Mb hard drive – £1300, A420/1, 4Mb, 40Mb hard drive, Risc Os 3 and Arm 3 fitted – £1100, both in mint condition, boxed with monitors and extras. Luton. Tel: (0582) 454439

● BBC BD, 32K Ram also BBC Z80 second processor containing Memoplan, Fileplan, Graphplan, Accountant etc, all manuals – offers. Aberdeen. Tel:(0224) 732738

● Star LC24–200, colour printer with dust cover – £180 ono, re–ink ribbon spray – £7 ono, Bug joystick and serial port interface – £28 ono. Lincolnshire. Tel: (0205) 722192

● A3000, 2Mb, colour monitor, Panasonic printer, software including 1st Word Plus, Interdictor, Lemmings, Chopper Force – £650. London N1. Tel: 071–218 7131

● A3000, 2Mb, Risc Os 3.11, colour monitor and stand, 20Mb IDE hard drive, good condition –£550 ono. Dyfed. Tel: (0239) 841594

● Master 128, colour monitor, dual 5.25in disc drive, double plinth, joystick, Interword and View, education and games software, music package – £300. Portsmouth. Tel: (0705) 826401

● A420/1LC colour, 4Mb, 20Mb hard drive, Os 3.1, Arm3, DTP, Compression, PC Emulator, games, desk – £900, Hewlett Packard Deskjet 500, still under warranty – £160. Aberdeen. Tel: (0224) 877247 after 7pm

● Archimedes 310M, colour monitor, 1Mb Ram, MemCIA, two slot backplane, external 5.25in disc drive, around 30 games, five years Risc User magazine – £475 ono. St Albans. Tel: (0582) 841330

● A3000, 2Mb Ram, colour Archimedes monitor, mouse, Risc Os 2, applications discs, PD software, word processor and all leads, very good condition – £500. Aston. Tel: 021–328 6806

● A440/1 with 4Mb Ram, 52Mb hard drive, Risc Os 3 – £600, Wordz – £50, Artworks – £60, PC Emulator – £50, Pipedream 3 – £30, Schema – £50, 1st Word Plus – £40. Kent. Tel: (0474) 707724

● Wanted by small charity special school: anything to do with BBC computers, software, hardware, Roms, anything considered, small amount cash available. Oxford. Tel: (0295) 788625

● BBC B with DFS plus ATPL Rom board, mono monitor, Watford video digitiser, Amx mouse and modem, software and manuals – offers. Bracknell. Tel: (0344) 426878

● A3000, 2Mb colour monitor, User/Midi port, sound sampler and software (Tracker, Midi Tracker and software), Pendown Plus, Atelier, games and other original software – £590 ono. Cullompton. Tel: (0884) 33684

● A3000, 2Mb, boxed, carry case, monitor stand, software plus any help I can give – £460, Acorn monitor – £120, both £550 ono. Derby. Tel: (0332) 792233

● Late, minimum use, Master 128, Prestel, Fastext, Printout, Teletext, Centronics printer, Microvitec 1450 MS4 colour monitor, also for Archimedes, Cumana twin 40/80 track disc drive, etc – £325. Christchurch. Tel: (0435) 273055

● Black Angel – £22.50, Quest for Gold – £17.50, Grievous Bodily 'Arm – £15. Dorset. Tel: (0305) 251593

● Master 128 with 65C102 co-processor, 40/80 track disc drive and some firm wave – £120, will swap for Eprom Eraser, also wanted Eprom Programmer (Watford). West Midlands. Tel: 021–422 6728

● 45Mb hard card – £180, wanted DTP, Artwork, PC Emlator, PD, scanner, sound sampler, Pipedream 3 and more. Tel: (0709) 816268

● Acorn A3010, c/w monitor, printer, 2Mb, PCEM, and many extras, as new – £550 ono. Norfolk. Tel: (0374) 201385

● Music 5000 synthesiser, Rom, discs, books, Symphony keyboard, Rom extensions board, Midi interface – £60, unwanted as no BBC to use it with. Sheffield. Tel: (0742) 463393

● Electron, Plus 1, colour monitor, disc drive with interface, Pres AP34, data recorder, all manuals, complete Electron magazines, joystick, lots of software, only – £250. Norfolk. Tel: (0493) 661977

● Dataphone V23 modem autodialling – £50, BBC Master power supply – £15, BBC B with manual – £50. Solihull. Tel: (0564) 778342

● A310, 4Mb Ram, 40Mb hard drive, Philips colour monitor, PC Emulator, other software and manuals – £425. Leicester. Tel: (0533) 857068

● Turbo Challenge 2 – £15, Pandora's Box – £10, Illusionist – £65, Pineapple colour digitiser – £99. Norwich. Tel: (0603) 402819

● Desktop database for Risc Os 3.1 – £25 ono. Westwood. Tel: (0636) 76864

● Arm3 A3000, 4Mb Ram, Risc Os 3.1, 80Mb external IDE hard drive, Taxan 770+ multiscan monitor – £975. Birmingham. Tel: 021–778 4934

● BBC B, Wordwise, disc drive, printer, joystick, software and manuals – £175. Salisbury. Tel: (0722) 335401

● A3000, colour monitor, stand, original boxes, carry case, PC Emulator, 1st Word, Lemmings, E–Type, Chuck Rock, Wizard – £500 ono. Woking. Tel: (0932) 348201

● Easiword (with registration form), Saloon Card Deluxe, Aldebaran – £20 each, Quest for Gold, Saloon Cars Extra Courses – £10 each. Surrey. Tel: 081–398 6854

● BBC B, twin disc drive, monitor, Juki 6100 printer, View, Viewsheet – offers. Surrey. Tel: (0932) 864325

● Impression 2.19 (unregistered) and Border – £90, Schema – £50, PC Emulator 1.8 – £40, Midnight Express – £30, Worracad – £50, Titler – £60. Staffs. Tel: (0827) 330118 evenings

● Acorn Cambridge workstation, 20Mb hard drive, 5.25in disc drive, reference manuals, Fortran 77, Pascal, C, Lisp and BM station – £400. Cambridge. Tel: (0223) 562290 evenings

● A3000 and RGB colour monitor, alll manuals and packaging, as new – offers, also ST506 20Mb – offers. Oxford. Tel: (0865) 63939

● Cumana dual 3.5in disc drive with power supply unit – £50. Surrey. Tel: (0428) 713326 evenings

● Computer Concepts A4 Scan Light scanner with feeder – £225, Artworks – £75. Kent. Tel: (0332) 326425

● A3000, 2Mb, colour monitor, stand, second 3.5in disc drive, KX–P1081 printer, 100 discs, magazines, books, manuals – £650. Kent. Tel: (0332) 435074

● Master 512 with Gem, mouse and manuals, 5.25/3.5in disc drives in Watford plinth – £200. West Glamorgan. Tel: (0639) 812781

● Telemod II modem for BBC or Archimedes – £75 ono, Rombo colour digitiser for A3000 (external) – £75 ono, Learning Curve software – £90 ono. Devon. Tel: (0803) 862189

● Master 512, Gem, mouse, Microvitec 1431, dual 40/80 track double sided disc drives in Viglen case, Stop Press, Super Art and mouse, Design, Viewstore, Quest Paint and mouse – £450, will split. Westwoodside. Tel: (0427) 753391

● Wanted: Symbnet utilities disc for BBC, version 3.2, preferably 40 track

5.25in disc drive, password must be known. Chesterfield. Tel: (0246) 455830

● A3000 and colour monitor, Turbo Pascal, Text Editor, Basic 5, PC Emulator, games, manuals – £400 ono. London SW6. Tel: 071-736 6216

● Arm3, 25Mhz, hardly used – £90, RGB Acorn colour monitor – £80. Catterick. Tel: (0748) 811383 after 6pm

● Master 128, colour monitor, single 40/80 track disc drive, educational software and games – £275. Frome. Tel: (0373) 830834

● Z88 with 128 Rom pack, mains unit, RS232 cable, manual, book and carry case – £70. Lancashire. Tel: (0257) 271772

● 35Mhz Arm3 by ground control – £150 ono, I/Face card for external floppy disc drive – £20. Kent. Tel: (0689) 874 691

● Canon LBP-8II printer with 25 fonts – £350 on,. Fujitsu Dl3400 wide carriage printer – £180. Hertfordshire. Tel: (0279) 724414

● Wanted: Computer Concepts Interword Rom and manuals, suitable for BBC B Issue 7 Os 1.2. Stoke-on-Trent. Tel: (0782) 746314

● Aldebaran, Chocks Away Compendium and Saloon Cars Deluxe, will swap or sell. Cheshire. Tel:(0260) 274887

● Music 5000 synthesiser, Rom, discs, books, Symphony keyboard, Rom extensions board, Midi interface, printer, joystick, software and manuals – £175. Salisbury. Tel: (0722) 335401

● Z88 with 128 Ram pack and mains unit, RS232 cable, manual, book and carry case – £70. Chorley. Tel: (0257) 271772

● A3000, 2Mb, Acorn colour monitor, Panasonic KXP1080 printer, serial port, manuals etc, very good condition – £600 ono. London NW6. Tel: 071-435 4218

● BBC B, taxan hi-resolution monitor, dual 5.25in 40/80track disc drive, Pal caption generator – £250, Electron, ADFS 3.5in disc drive, API, 6 and 7 – £80, Horizon printer – £40. Risc Os 2 PRMS – £20. Shinwell, Camberley. Tel: (0252) 875986

● GSCE Revise Maths Course, AVP Computing, 13 discs, booklets, answers, worksheets, for Archimedes/A3000, owner got grade A, hence sale – £250. Swansea. Tel: (0792) 406062

● Archimedes 410/1, upgraded, Risc Os 3, 20Mb hard drive, 2Mb Ram, Econet module, Panasonic XP-P1124 24 pin printer, Interdictor 2, E-Type, Air Supremacy, as new – £900 ono. Essex. Tel: (0245) 361198

● Archimedes 440/1, 8Mb, Arm3, Risc Os 3.1, 50Mb disc drive, requires monitor – £800 ono. Coventry. Tel: (0203) 715864

● Arm3/25 – £110, second internal disc drive kit for A310 – £75, 5.25in 40/80 track disc drive – £50, 43Mb IDE drive – £100. Wolverhampton. Tel: (0902) 338214

● BBC B, series 7, 40/80 track 5.25in disc drive, Wordwise Rom, various software on disc and tape, spares, books, mags – £50. Burnley. Tel: (0282) 414088

● A3000, 2Mb Ram, Risc Os 3.1 serial and parallel ports fitted, all manuals and applications discs, Philips monitor and stand, software – £475. Tel: 041-641 1302

● Gods, Lemmings and Chuck Rock, mint condition, as new – £15 each ono. Norwich. Tel: (0603) 811477 evenings and weekends

● Technodream in original packaging, very good condition, not used much – £15. Nottingham. Tel: (0602) 399394

● Epson LX800 printer, tractor feeder, stand, unused ribbon, leads – £75, Chroma Genlock for A3000, manual – £150, Hybrid Music 5000 synthesiser plus keyboard, Rom, manuals – £85. Essex. Tel: (0268) 754112

● Contacts wanted: I am seeking Archimedes owners in the Burnley area for mutual support and possible social meetings. Burnley. Tel: (0282) 426809

● A420, 4Mb Ram, Arm3, 20Mb internal hard drive, 40Mb external hard drive, Risc Os 3.1 – £600 ono. Edinburgh. Tel: 031-449 3869

● Computer Concepts Laser Direct LBP4, board and latest printer software, hires – £700 or offers. Cambridge. Tel: (0223) 63545

● A5000, 4Mb Ram, 80Mb hard drive, multiscan monitor, lots of software, as new – £1350. Hampshire. Tel: (0590) 677625

● Psion series 3 256k plus spreadsheet – £150, Integrex colourjet series 2 – £200, Techno-I real time colour video digitiser – £150. Cumbria. Tel: (0900) 814605

● A3000, 4Mb, Risc Os 3.1 and monitor – £450, Scsi 40Mb drive and interface – £150, 2Mb upgrade – £25, 5.25in disc drive, interface and DFS reader – £75, Canon PW1080 NLQ printer – £40. Tadcaster. Tel: (0937) 835744

● Master 128, Cub colour monitor, Cumana double sided disc drive, View, Mini Office II, Amx Stop Press, Amx mouse, joystick and many games – £275 ono. Swindon. Tel: (0793) 872989

● A5000, 32Mhz, 4Mb hard drive, Risc Os 3.11 – £1275. Manchester. Tel: 061-225 5555 ext 162

● Archimedes 310, Arm3, 4Mb Ram, Panasonic C1381i SVGA multisync monitor, super Vidc enhancer A5000, manuals, software – £900. Alfreton. Tel: (0773) 873611

● BBC B, 32K, Microvitec colour monitor, 80 track 5.25in disc drive, Logo, Wordwise, Disc Doctor, Amx Art and mouse, software and games etc - £200. Barnham. Tel: (0243) 55457

● Swap Superior Software's amazing Technodream for any decent game, any game considered. Derby. Tel: (0332) 385813

● A3000, colour, 2Mb, Os3.1, 30Mb hard drive, PRM, all leads/boxes - £650, plus over £500 of PD and games - £200 or the lot - £795. Castleford. Tel: (0977) 511161

● A440/1, Philips CM8833/II monitor, 50Mb hard drive, sound samplercard, Star LC24-200 printer, 20 plus original software titles - £1050 ono. Cambridge. Tel: (0223) 335511

● A3000, 2Mb, Risc Os 3.1, colour monitor and stand, PC Emulator, 1st Word Plus, many games - £550. Bradford. Tel: (0274) 591979

● Computer Concepts' Rom/Ram podule - £30, Brother typewriter interface - £30, Amx Super Art - £10, System Delta databaseRom - £12. Mansfield. Tel: (0623) 27423

● Grievous Bodily 'Arm, Cataclysm, Galatic Dan - £10 each, X-Fire - £8 (all un-boxed, instructions included), all - £18. Bristol. Tel:(0272) 570121

● BBC B, colour monitor, double sided 40 trackdisc drive, Watford DFS, Interword Rom, 32K shadow Ram, Mini Office II, joystick, books - £175. Surrey. Tel: (0932) 344498

● A3000, 4Mb Ram, TV modulator, Risc Os 2, games, applications discs, manuals, boxed - £400. Cornwall. Tel: (0209) 842057 after 6pm

● Archimedes A410, updates to A440, 4Mb Ram, 20Mb hard drive, Philips colour monitor, Scsi interface, software, - £750. York. Tel: (0588) 640231

● BBC Acorn User, Master 128K, twin 5.25in disc drive, VDU colour monitor, printer, Canon PW-1080A, books and paper - £100 ono. Edinburgh. Tel: 031-225 3617

● Epson LQ800 24pin printer, automatic single sheet feeder, 50 sheet capacity – £200 ono. Balerno. Tel: 031-449 3869

● Clares Illusionist Ray tracer, boxed and in mint condition – £55. Devon. Tel: (0363) 82303

● Master 128 with Overview software package, double sided disc drive, colour and amber monitor, all Acorn manuals plus many programming books, mint condition. Worcester. Tel: (0905) 358712

● 2Mb upgrade for A3010, can be extended to 4Mb – £30. Hampshire. Tel: (0256) 780784

● Master 128, Spellmaster Rom, Philips stereo monitor, Cumana 5.25in double disc drive, switchable power supply unit 40/80 track, all boxed, plinth etc – £231. Malvern. Tel: (0684) 575857

● Master 128, dual 5.25in disc drive, Philips colour monitor, Epson LX800 printer with tractor and cut sheet fees, manuals, excellent condition – £330 ono.

● Music 5000 synthesiser, Rom, discs, books, Symphony keyboard, Rom extensions board, Midi interface, printer, joystick, software and manuals – £175. Salisbury. Telephone: (0722) 335401

● A310, RGB colour monitor , Opus 50/80 disc drive, Risc OS, PC emulator, various software, EMR soundsynth with Spectre software, manuals and more. Immaculate condition. £650 or near offer. New Malden, Surrey. Tel: 081-949 8947

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The Ecole range of computer trolleys for the Acorn Archimedes



The Ecole range of computer trolleys has been designed to meet educational requirements for greater efficiency and security. Moving computer equipment is expensive and time consuming, added to which there is always the chance of accidental damage to equipment. The Ecole computer trolley helps to overcome these problems. Computer systems can be set up once, wheeled to the required classroom and be plugged in ready to use.
There are two basic designs: MCT04 for expandable systems such as Acorn A3000 series and MCT05 for three-box construction computers such as the Acorn A540 or A5000. Both can be fitted with a four way power block (P). Both trolleys are designed to pass through a standard width door and incorporate a strong metal frame, plastic laminated work surface, and 75mm wheels fitted with rubber tyres to give a quiet shock-absorbing ride. The front two wheels have brakes fitted for extra stability when the trolley is stationary. The trolley's metal frame is finished in hard wearing stove enamelled paint in a choice of blue or brown.

Options

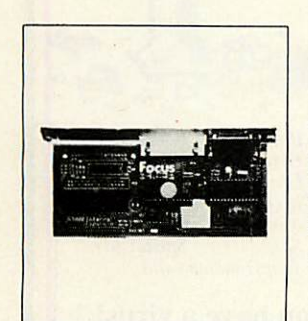
Desk heights	500, 600, and 700 mm
Colours	Blue with cream work top
	Brown with cream work top

Please state choices when ordering, e.g. MCT05 (500 Blue)

Code	Price
MCT04	£89.00
MCT04P	£114.00
MCT05	£78·95
MCT05P	£104.00
Printer Paper Shelf	£18.95
Delivery	£15·00

Warranty 24 Months
Prices exclude Value Added Tax

Ecole User and User Analogue ports for the Acorn A3000, A3010, A3020 and A4000



The Ecole User port is compatible with hardware and software developed for the BBC computer through to the Acorn range of Risc computers. The firmware is provided in ROM on the podule and supports OS Byte calls &96 and &97. The User/Analogue Port firmware supports the above calls plus ADVAL key words.

User Port	£35·00
User Analogue Port	£39·95
Delivery	£2.85

Warranty 12 Months
Price excludes Value Added Tax

Black Box sound sampler and accessories

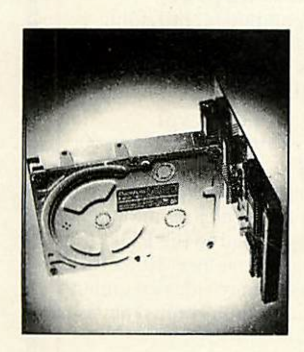


Black Box is the low cost sound sampler for the Archimedes. It is an ideal way of capturing sounds which can be added to your own programs or multimedia applications. It consists of a robust hand-held microphone with integral on/off switch, and a box containing the electronics. Simply plug Black Box into the printer port of any Archimedes computer and you are ready to record.
Black Box has an adaptor provided which allows a variety of other sound sources to be plugged in, and music or speech recorded direct. Have fun creating sound samples which can be included into multimedia applications such as talking stories or books, special effects and sound libraries.
(No batteries required)

Black Box with hand microphone	£29·95
Black Box with headphones & boom microphone	£39.95
Black Box with deluxe headphones & boom microphone	£55.95
Delivery	£2·85
Black Box direct recording level adjuster (All models) (this is normally only required when recording direct from powerful devices)	£12·95
*Delivery	£1·00
6 Metre extension cable	£4.95
*Delivery	£0.50

(*only applies if brought separately)
Warranty 12 Months
Prices exclude Value Added Tax

The Ecole range of SCSI hard discs for the Acorn Archimedes



The Ecole range of hard disc upgrades are designed to be plug-in- and-go. Both the Internal and External systems include a 16 bit* SCSI controller (fully Acorn SWI compatible) which also incorporate Acorn's CDFS. Each system is tested at every stage of manufacture, and has been given a final rigorous test to ensure that it meets our zero defect standards. The External hard disc unit is housed in a metal case together with a switch mode power supply, low noise fan and industry standard 50 way SCSI in and out connectors. The attractive case is stove-enamelled, colour matched to the Acorn computer and comes complete with a round shielded SCSI cable.
When ordering please state the model number (i.e. A5000). This will ensure that you receive the correct upgrade. Please note * A3000 has optional 8 bit internal or 16 bit external SCSI card. A3010, A3020 and A4000 have 8 bit internal SCSI cards. The warranty period quoted above applies to the hard disc mechanism only. All other parts are one year warranty. Units are available as additional devices.

INTERNAL SCSI HARD DISC DRIVES

Size	Drive Man	Warranty	Price
120 Mb	Quantum	2 Years	£299·00
170 Mb	Quantum	2 Years	£345·00
240 Mb	Quantum	2 Years	£408·00
525 Mb	Quantum	2 Years	£799·00
584 Mb	Micropolis	5 Years	£842·00
1000 Mb	Micropolis	5 Years	£1092·00

EXTERNAL SCSI HARD DISC DRIVES

Size	Drive Man	Warranty	Price
120 Mb	Quantum	2 Years	£389·00
170 Mb	Quantum	2 Years	£439·00
240 Mb	Quantum	2 Years	£503·00
525 Mb	Quantum	2 Years	£894·00
584 Mb	Micropolis	5 Years	£937·00
1000 Mb	Micropolis	5 Years	£1181·00
1800 Mb	Micropolis	5 Years	£1620·00
2000 Mb	Micropolis	5 Years	£1997·00
Delivery			£10.00

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A3010 Learning Curve			
Includes 2Mb Ram, Colour Monitor, and Learning Curve Software as described below			£ 637

A3020 Computers

A3020 System			£ 675
Includes 2Mb Ram and Colour Monitor			
	MultiScan Monitor	add	£ 42
	60Mb Harddisc	add	£ 150
	4Mb Ram	add	£ 99

A4000 Computers

A4000 HD80 System			£ 850
Includes 2Mb Ram, 80Mb Harddisc and Colour Monitor			
	Multiscan Monitor	add	£ 42
	4Mb Ram	add	£ 99
	386 PC Card with 1Mb	add	£ 225
	486 PC Card with 4Mb	add	£ 425
	Learning Curve (See below)	add	£ 42
	Home Office (See below)	add	£ 85

A5000 Computers

A5000 2M HD80 System			£1275
Includes 2Mb Ram, 80Mb Harddisc and Multiscan Monitor			
	4Mb Ram	add	£ 129
	4Mb + 164Mb HD	add	£ 170
	Learning Curve (See below)	add	£ 42
	Home Office (See below)	add	£ 85
A5000 ES - Econet System			£1175
Includes 2Mb Ram, MultiScan Monitor and Econet			
A5000 NS - Network System			£1275
Includes 2Mb Ram, MultiScan Monitor and Ethernet			

Learning Curve System

The Learning Curve System can be purchased with the A3010, A4000 or A5000 range of computers. It consists of an audio instruction tape and software including,- Acorn Advance, PC emulator, Rhapsody 2, Scoredraw, Voxbox, Servour, Darryl the Dragon, Topography, Smart, The Crystal Rainforest, Naughty Stories and Arcventure.

Home Office System

The Home Office System can be purchased with the A4000 or A5000. It consists of an audio instruction tape and software including,- EasiWriter, Datapower, Pipedream 4, Prophet, Almanac and the PC Emulator.

A4 Portable Computer

A4 2M FD System	Includes 2Mb Ram	£1399
A4 4M HD 60 System	Includes 4Mb Ram and 60Mb HD	£1699

Pocket Book Computer

Acorn Pocket Book — £212

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Extend	*ExtendV2*	*FCodex*	*Funky*	*Garfield_I*	*Garfield_W*
Handler	*Icon*	*Image*	*Increment*	*IRQFix*	*Link*
Mode87	*Module*	*MyMod*	*NetManager*	*NetStatus*	*NewDesk*
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Pineapple Colour Video Digitiser

Full colour video digitising is made easy with our very popular digitiser. The software features are still second to none and the hardware will now work with even the A3000/4000 series of computers using our MEA/2 adapter board.

Apart from all the normal features you expect from a digitiser, the Pineapple Digitiser will grab a sequence of video frames and replay them - even while still watching the incoming video!

The standard digitiser occupies a double width expansion slot, but the boxed version which is essential for A3000/4000 computers can also be used with A300/400/500 series computers where it will only occupy one expansion slot.

A300/400/500	**£199.00 + vat**
A3000 boxed	**£235.00 + vat**
A3010/3020/4000 boxed inc. MEA/2	**£260.00 + vat**

Internal / External Expansion Adapter

This adapter fits the A3010, A3020 & A4000 computers, providing a 64 pin expansion socket similar to the A3000. In the case of the A3000 two expansion slots can be obtained. This enables external devices such as our video digitiser to work with A3010, A3020 and A4000 computers.

MEA /2 — £28.00 + vat

Pineapple PAL Coder

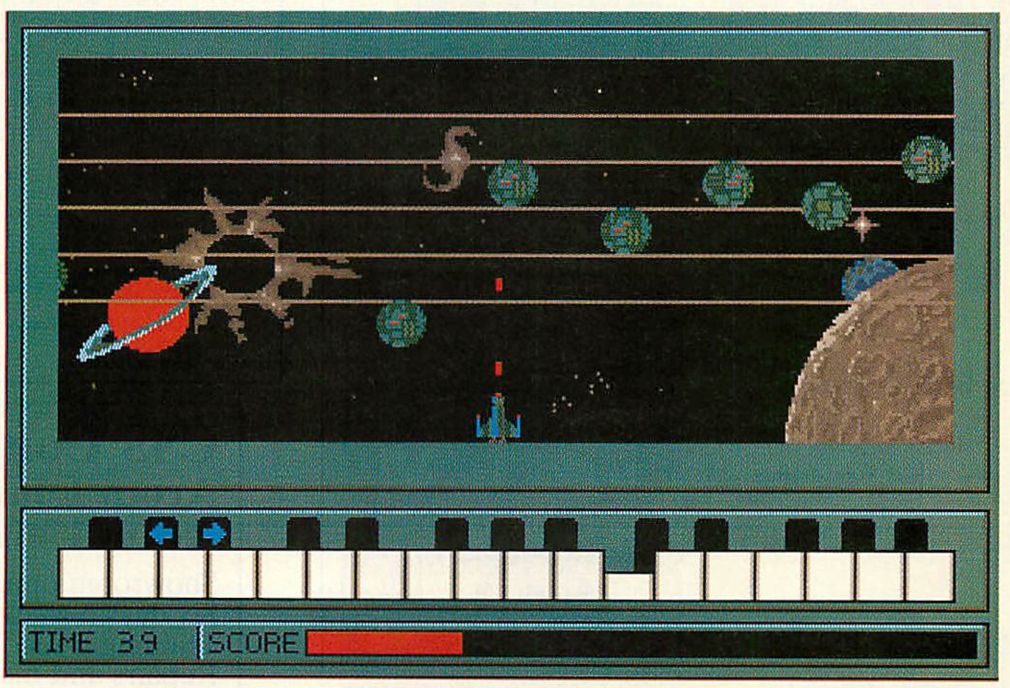
The Pineapple PAL Coder is a stand alone unit which provides a coded signal which can be recorded onto VHS or fed to any monitor or TV set with a coded input. The unit is inserted in the lead to the RGB monitor and provides an RGB output for the monitor together with a PAL coded output on a BNC socket. A second version also provides an output in S-VHS format as well as composite. Note that only non-multisync monitors may be fed with the RGB signal.

Standard Version £69.00 + vat S-VHS £79.00 + vat

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A piano tutor that shoots aliens at the same time? Sounds better than a rap over the knuckles with a ruler, says Richard Garrett

Face the music

Few people would deny a keyboard instrument in the hands of a master player is as expressive as anything else you might strum, scrape, blow or hit. For many musicians, however, it is a functional device which enables them to play a greater range and combination of notes than practically any other.

Keyboard Trainer is a sequence of 62 on-screen lessons for Risc OS computers with Midi. It is designed to help new players develop fundamental mechanical techniques. Although configurable for any Midi setup, it is designed for use with multi-timbral keyboards containing built-in drum sounds; it comes with pre-written configuration files for many models (Yamaha PSR300, Roland Sound Canvas and so on).

The two elements of the screen display are a list of lessons ranging from 'Play middle C' to 'Play the theme from the New World Symphony'; there is also a main window showing the current lesson. At the bottom of the main window, there is an 'edge on' picture of a piano keyboard on which the keys move up and down when the corresponding keys have been pressed on the Midi keyboard.

There are three types of lessons: study, games and tunes. A study lesson explains a new topic like a hand position, a new key to press or a new rhythm followed by a related exercise. Most exercises require you play particular notes with the appropriate finger of your right hand.

Each tune displays a melody in standard music notation and controls marked play, record, replay and tempo. When you hit Play, the keyboard plays the tune along to a Midi'd backing group, a red dot bounces from note to note on the score and piano keys on screen move up and down as successive notes are played. When you hit Record, you get to play the lead line and, when you select replay, *Keyboard Trainer* plays back what you did, marking with crosses the notes you missed or got wrong.

For the kids the package is targeted at, the most exciting bits are likely to be the two games, which conduct lessons via shoot-em-up gameplay.

Keyboard teaches the correct fingering positions for each note

CONCLUSION

I enjoyed this program and found the lessons well structured and easy to follow. I would only criticise it for limited feedback at the end of lessons. Too often, I got 'time out' or 'too many wrong notes' messages just as I was getting the hang of something. It would be helpful if the system gave marks for accuracy, number of right and wrong notes as well as an overall score.

What *Keyboard Trainer* does, it does well. It doesn't teach anything about feel, but, hopefully there will still be music teachers around to take care of that.

Product details

Supplier: Minerva Software
Tel: (0392) 437756
Price: £ 79.95 + VAT
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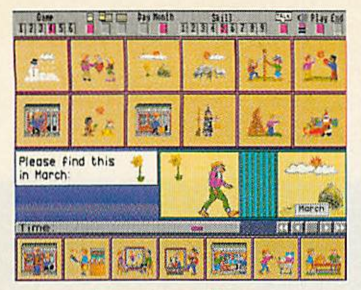


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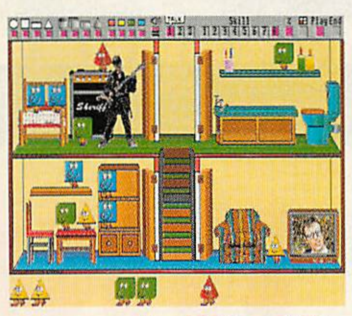
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Believe it or not, *Keystroke* can actually control any Risc OS program. Imagine a single key press to perform 'Group frames' in Impression, perhaps set 'Text Repel' in a frame to a specific value or a quick key press to turn a frame to the transparent colour! Ctrl+T could bring up !Paint tools window, F1 to mount a disc, F11 to bring up the task display, or F3 to save a file, or save the file automatically every 15 minutes. *Keystroke* can perform these and many more amazing things! *Keystroke* also comes with a !Buttonbar application that allows keystrokes to be used by clicking on an icon. Create your own tools window! A complete Impression tool window is included!

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Keystroke is suitable for all Archimedes running Risc OS 2-3.11 and is offered for only £29.95 fully inclusive. No VAT.
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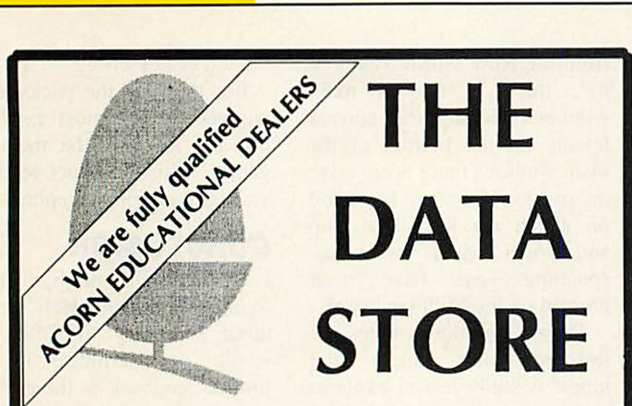


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In touch with the elements

Alice Smith goes back to the lab, with Academy's new chemistry tutor on CD-Rom

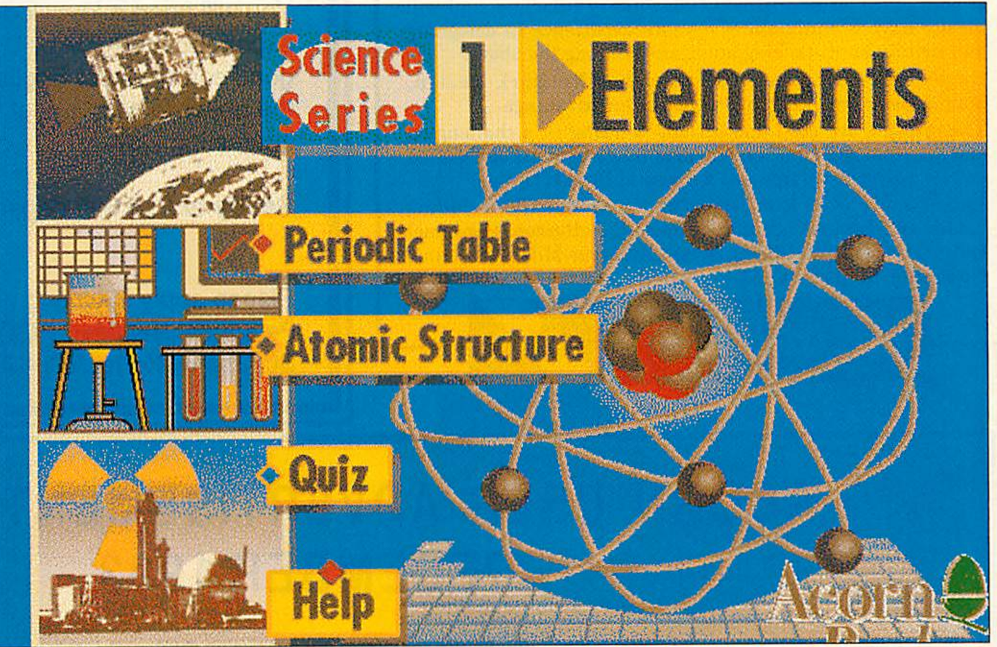
Slot in this CD-Rom and the distinctive whiff of the chemistry lab hits you. I have strong memories of chemistry lessons. Although this disc could not have assisted me with incendiary experiments or aggravating teachers, it would have helped me memorise the periodic table, another thing which caused me grief.

Teaching Science: Elements is a dramatised reconstruction of that periodic table. It is presented in the customary way but if you click on any symbol you are given the opportunity to investigate the properties, history and uses of that element. The textual information is detailed and academic enough for A-Level students, but the disc could be used quite profitably with younger students. It is flexible, too, and can be employed as an audiovisual teaching aid or for individual study.

Experiments are shown in progressive stills or, if appropriate, short video clips. The developers have admirably adhered to the rule that only material which can actually benefit from being shown on video should be included in that form but sometimes the clarity of these moving images is not brilliant.

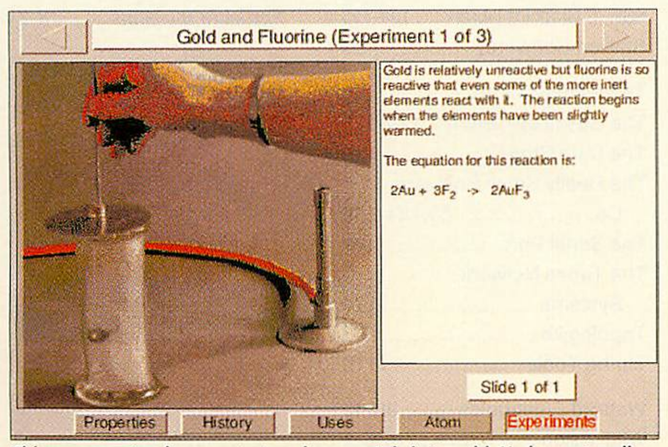
Quizzes which test knowledge are often superficial but this one is excellent. Questions are multiple choice but their format varies and to score highly you need to have worked through the disc and must know your stuff, against the clock.

Also included in the package is an application called *Scrapbook*, supplied on floppy, which allows the user to cut and paste data into his file. It can hold video, stills, graphics and animation, and students can also add their own text. This is a handy feature which enables teachers to extend the disc's educational usage.



Multiple choice quizzes test how thoroughly you have absorbed the program's information

All these aspects offer some level of interactivity but the section which will really appeal to students is atomic structure. Call up an element, click on the atom button and a diagram of its atomic structure appears. Click on more buttons and you can change its structure and build your own atom by adding protons, electrons or neutrons, so you can, almost literally, turn lead into gold. You can then go on to look at radioactive emissions, build isotopes, investigate decay and learn about half-life.



This program teaches you to turn base metals into gold. Ha ha, not really

A manual isn't really necessary because making the disc work is very intuitive. However, a small ring binder does contain a 'curriculum pack' which provides some very good worksheets and suggestions for activities, along with relevant excerpts from the National Curriculum.

Distributed by Academy Television but developed by Interactive Learning Productions in conjunction with Yorkshire Television, which has a substantial video library, this CD-Rom has already won a European Multimedia Award and its various elements add up to an impressive resource. At £130 it might seem expensive but I'm afraid that is the price you pay for quality, home-grown discs, and this would be a worthwhile investment for any science department.

I ran *Teaching Science: Elements* from one of the cheap new Cumana 300 drives (£299 including VAT). Cumana is on (0483) 503121 and I have nothing but praise for the hardware's speed and efficiency. It was also very easy to attach it to my Arc and it's not often that you really can 'plug in and go' with a piece of hardware.

Alice Smith

Product details

Product: Teaching Science: Elements
Supplier: Academy Television
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ACORN USER ADVERTISEMENT PAGES DECEMBER 1993



Two into one **goes**

The best of both worlds? James Richards looks at the ScanLight Video 256 hybrid

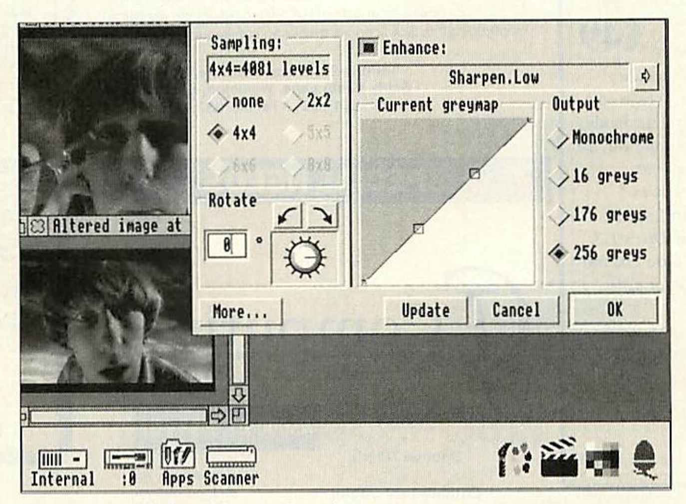
If you want your computer to be well connected to the outside world, the ScanLight Video 256 may be for you.

It combines CC's scanner hardware and the Wild Vision Greyhawk video capture hardware, all controlled by CC's *ScanLight Plus* software. It'll save you money if you want to buy both upgrades: £68 excluding VAT. It also saves an expansion slot over the two-card system.

Supplied in the package is the podule, a hand scanner (with guide ruler), two manuals and a half-width blanking plate. I found it easy to install and was ready to go in five minutes. I plugged my VCR into the BNC connector on the card, and the scanner into the socket just next to it.

There are two main pieces of software. *Scanner* is the software for grabbing and manipulating images, be they from the scanner head or the PAL source connected to the card. *TakeOne* is supplied to aid grabbing by displaying the video image in a live(ish) desktop window – you don't need to connect another monitor.

The *Scanner* software can grab three sizes of video image with 256 greyscales.



The name of this band is not Altered Images

The Full Frame option grabs the whole video frame and gives a sprite of 768 x 288 pixels (216K). Cropped grabs a smaller frame based around the centre of the image (512 x 256 pixels – 128K), and Interlaced gives the best picture at 512 x 512 pixels (256K).

Grabbing a frame is a matter of lining up the section of video with a bit of pre-roll, hitting play on the recorder then clicking on the Scan button in the *Scanner* window. When using a live video source the desktop picture seemed to drag slightly behind what you would expect to grab, so getting the exact frame is a bit hit and miss. Pausing the video on the frame is not advised due to the unstable picture that most videos give out.

The 256-greyscale scanner is hand held and can scan at 100, 200, 300 and 400dpi (all with an image width of 105mm). A red light and a buzzer indicate when the scanner can't cope with the speed it is moving.

The original image can be re-sampled to reduce it, the grey mapping can be altered to lighten and darken it, and there are lots of pre-defined filters to sharpen, edge detect and blur.

If you're interested in playing with images, ScanLight Video 256 is good value and saves expansion space. In the classroom it makes a computer a good source of electronic magazine and TV cuttings, on screen or printed picture quality is fine. You'll need 2Mb of memory, and if you haven't a hard disk I recommend you get one before you indulge.

Product details

Product: Scan Light Video 256, scanner and video digitiser.
Supplier: Computer Concepts
Tel: (0442) 63933
Price: £220 + VAT
Special upgrade deals are available on certain Scanlight packages and the Wild Vision Greyhawk digitiser. Phone Computer Concepts for details.

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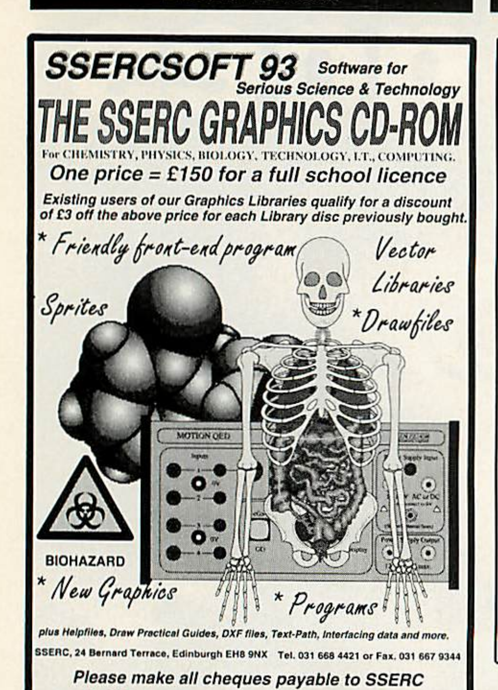
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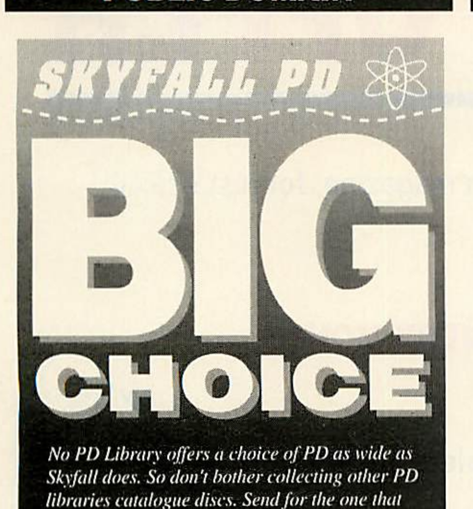
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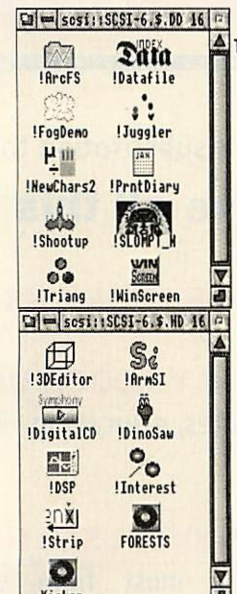
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THE ACORN USER HANDBOOK

Available exclusively to Acorn User subscribers

Getting to know your machine is a vital part of learning to use your Acorn computer to its full potential, but who wants to wade through piles of manuals to get at the hard facts?

The *Acorn User* Handbook is a 48-page guide to getting the most from your computer, with five major sections covering every aspect of your machine.

Understanding the hardware beneath your computer's bonnet is vital if you are to understand how the computer actually works. The hardware section of the handbook examines all the components of Acorn computers from processor chips to floppy disc drives to expansion ports.

For all those thinking of expanding your computer, there's an in-depth look at all the peripherals available, such as printers, modems and scanners: decide what you want with our expert guidance.

Risc OS is the most important part of using an Acorn as far as most people are concerned, and the most important aspects are covered, along with loads of hints and tips to help you use your computer more efficiently. The desktop is dissected, there's a detailed look at optimum configuration settings, an explanation of all those error messages which crop up, and how to avoid them; the list goes on. Read this section, and you'll find the desktop far more friendly than you thought it could be.

Software makes computers as powerful and as popular as they are, but the range of Acorn software is daunting. Thinking of buying an art package, or a decent word processor? The handbook explains all the categories you'll come across, and tells you the most popular products you should be thinking about.

The final section is potentially the most valuable of all: the one-and-only Acorn Glossary. Jargon-busting is the trickiest part of getting to grips with computing, and with the handbook by your computer you'll be able to understand phrases like 'clock speed of 33MHz' and 'Risc Chips execute machine code instructions faster than Cisc chips'. Invaluable, and fascinating reading.

Illustrated with colour pictures and photos throughout, the *Acorn User* handbook will turn you into a power user who can really use Risc OS machines. Don't get left behind: read the only manual that matters.

Finding your way round the desktop

The Pinboard. You can drag any files, directories or icons to the Pinboard, and they will stick there. The Pinboard acts just like the normal Filer, but deleting icons does not delete the files themselves: the Pinboard icons are just pointers to the items on disc. You can save the state of the Pinboard, or include the details in a boot file so your favourite applications appear every time.

A directory window, or Filer window. From this window you can access files on disc. Visible in this window are a boot file, a font folder, the scrap directory, the system directory and a number of directories. The title of the window shows the filing system (ADFS), the name of the disc (HardDisc) and the directory being shown ($ – the root directory). Clicking Menu over this window brings up the Filer menu, which looks like this:

```
Filer
Display
Selection
Select all
Clear selection
Options
New directory
Open parent
```

Device and filing system icons appear on the left-hand side of the iconbar. Devices represent printers, faxes and so on: hardware add-ons to which files can be sent. Filing systems are for file storage and include hard discs, floppy discs and the Ram disc. In this example, from left to right, we have a hard disc (called HardDisc), floppy drive 0, the resources filing system and the Ram disc. The resources filing system contains the Rom applications and the built-in fonts (Corpus, Homerton and Trinity). Clicking Select on a filing system icon brings up a directory window for that system, and clicking Menu brings up a menu relevant to that system; on the right is the menu for floppy drive 0.

```
ADFS::0
Name disc
Dismount
Format
Backup
Verify
Free
```

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A typical desktop window. In this case it is a document in an editor (*Impression*). This particular window has cream-coloured icons, which means it has the input focus: any keys pressed will be reported to this window, so any text typed will appear in this document, and any function key-presses will relate to *Impression*. The window could be iconised onto the Pinboard by clicking on the close icon with SHIFT held down; an icon would appear on the Pinboard, and double-clicking on that icon would bring the window back.

Back: click to put window to back

Close: click to close window

Toggle: click to toggle window size

Size: drag to alter window size

Scroll arrows: move around document

Application icons appear on the right-hand side of the iconbar. In this screen shot the applications from left to right are: *Help*, *Draw*, *Edit*, *Paint*, and *Impression*. The two on the right (*Palette* and the Task manager) are special, and are described below. Click Menu over any icon to bring up an iconbar menu, which will include the Quit option to kill off the application. Not all applications install themselves on the iconbar in this way, but the vast majority do.

The *Palette* application lets you change the screen mode and colours on the desktop. Click Menu to bring up the menu: the Mode submenu allows you to change screen mode. Click Select to bring up the palette editor window (shown right).

The Task manager forms the crux of the desktop's memory management system. Click Select on the icon to bring up the Tasks window, showing the memory allocations for such items as the font cache, Ram disc, screen memory, the module area and all the applications loaded. From the iconbar menu you can save boot files (see page 23), create task windows, and shut the system down.

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Find your way round the most important parts of your machine with the Acorn User Handbook

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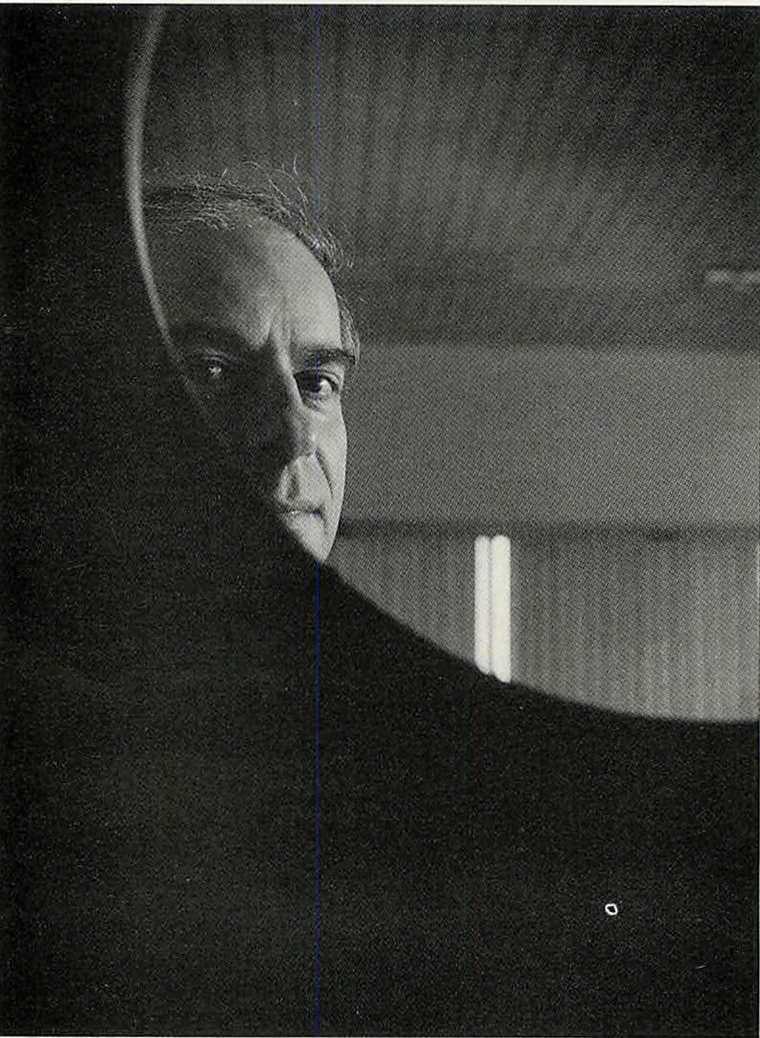
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THE MOXON INTERVIEW

DAVID BELL

Providing technical support at Acorn must be a real nightmare. Listen to these statistics: the Acorn technical support department received over 450 customer letters in September (that doesn't include those from registered developers) and over 850 phone calls in the last week of the same month. This might not sound like many, but when your support team numbers only 15, it is. And as for the Christmas rush...

'Still, we're better off now than we were two or three years ago,' says David Bell, manager of the technical support team. 'Then we were taking several weeks to reply to queries; now we turn round most letters in a week. Without belittling previous teams, I think the current support team is the best we've had.'



David started working at Acorn in January 1983, attracted by the dynamism of the home computer scene. He started as BBC Project Controller, a job created after a BBC consultancy report about concerns that Acorn might not be able to meet the volume demands for the BBC micro. 'After all,' he points out, 'the initial BBC order was 12,000 machines; eventually about 650,000 were sold.'

'Without belittling previous support teams, the current set-up is the best ever'

So, how has the typical Acorn user changed over the years? Are we still hackers, or are we growing up?

'The number of hackers is diminishing, and increasingly people are clear about what they want to use a computer for,' explains David. 'As the industry has been increasingly hiding the technical aspect of machines under the hood, so customers have become less interested in the actual workings of the computer. They want to use them, rather than play with them.'

It sounds as if the business is going along the same lines as the car market. Back in the early days of driving, you had to know your carburettor from your sump, but modern cars are so complex you need to be a trained mechanic to fix them. David agrees: 'Systems are becoming much easier to use – plug in and play, if you like – but they are also becoming far more technically complex. Modern systems produces queries not necessarily technical in nature, but whose solutions can be involved.

'For example, a number of printers work for some people, but not others: the problem lies in the firmware, and only the latest version works. So if we say our system works with a printer, we have to specify the version.'

Sounds horrific. But there's no getting away from customer support these days, which has interesting repercussions in the marketplace. 'Consider a TV costing £400,' says David. 'You plug it in, and it either works or doesn't: it's unlikely you'll need to contact the manufacturer. We produce an open-ended computer system for the same price, and people expect free support. The industry trend is to charge beyond a certain level; Acorn hasn't introduced a charge, but it's not been ruled out.'

So what of the future? According to David – and I'm surprised by this, judging by the Questions and Answers in-tray – there are few questions from people who don't understand the manuals; the majority of queries are on peripherals.

'It's down to expanding choice,' he says. 'Take printers. Back in the early 1980s you got an Epson-compatible printer and problems were few. Now there are so many different types and makes of printer that the customer is confused; this diversity means our experts are becoming more specialised, rather than knowing everything about the machine.

'And in future there are other factors: more awareness of and compatibility with PCs; foreign-language versions of Risc OS and manuals; new products and developments. They'll all need support.'

Told you, it's a nightmare. But aren't you glad there's someone there to help?

Mark Moxon